Soil survey of

Cape Girardeau Mississippi and Scott Counties MISSOURI

United States Department of Agriculture
Soil Conservation Service
in cooperation with
Missouri Agricultural Experiment Station

HOW TO USE

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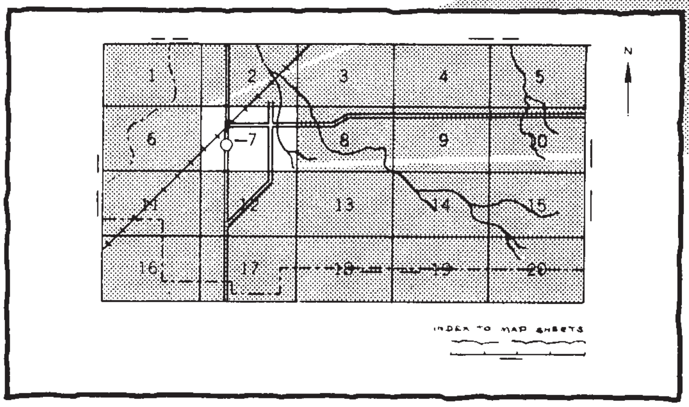
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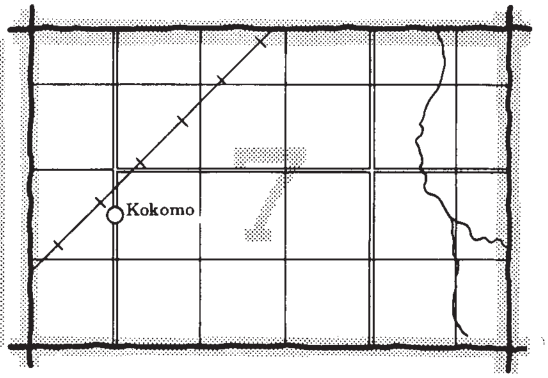

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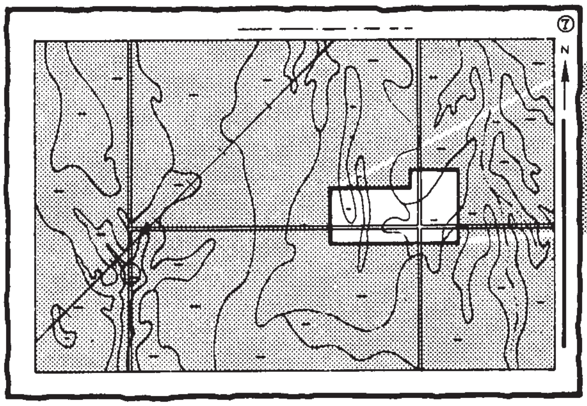

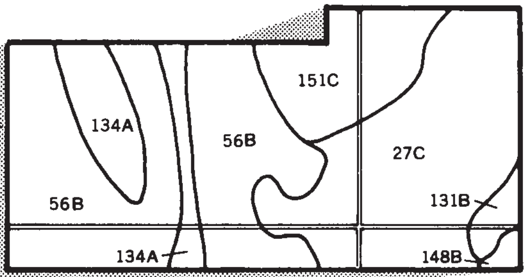
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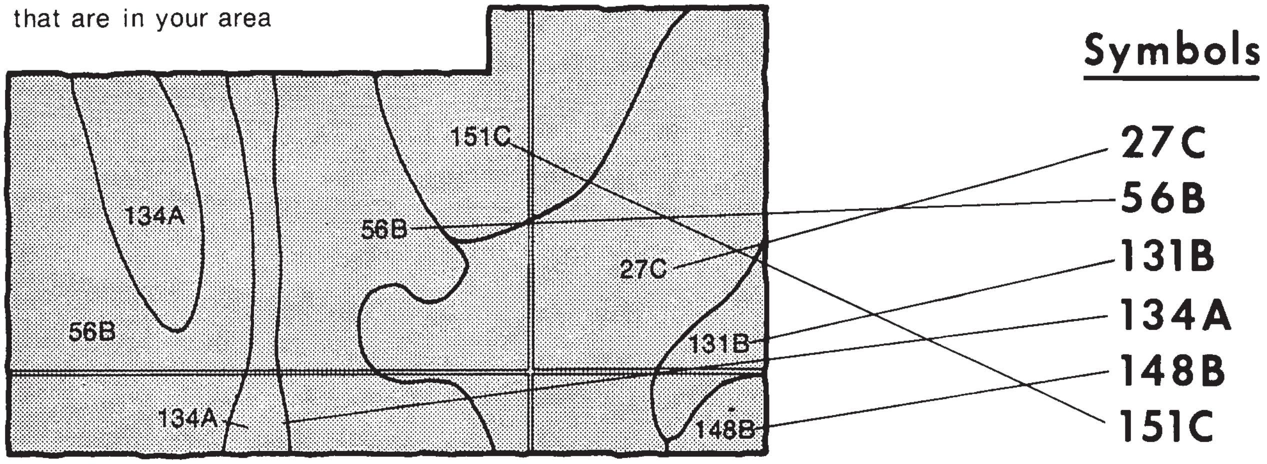
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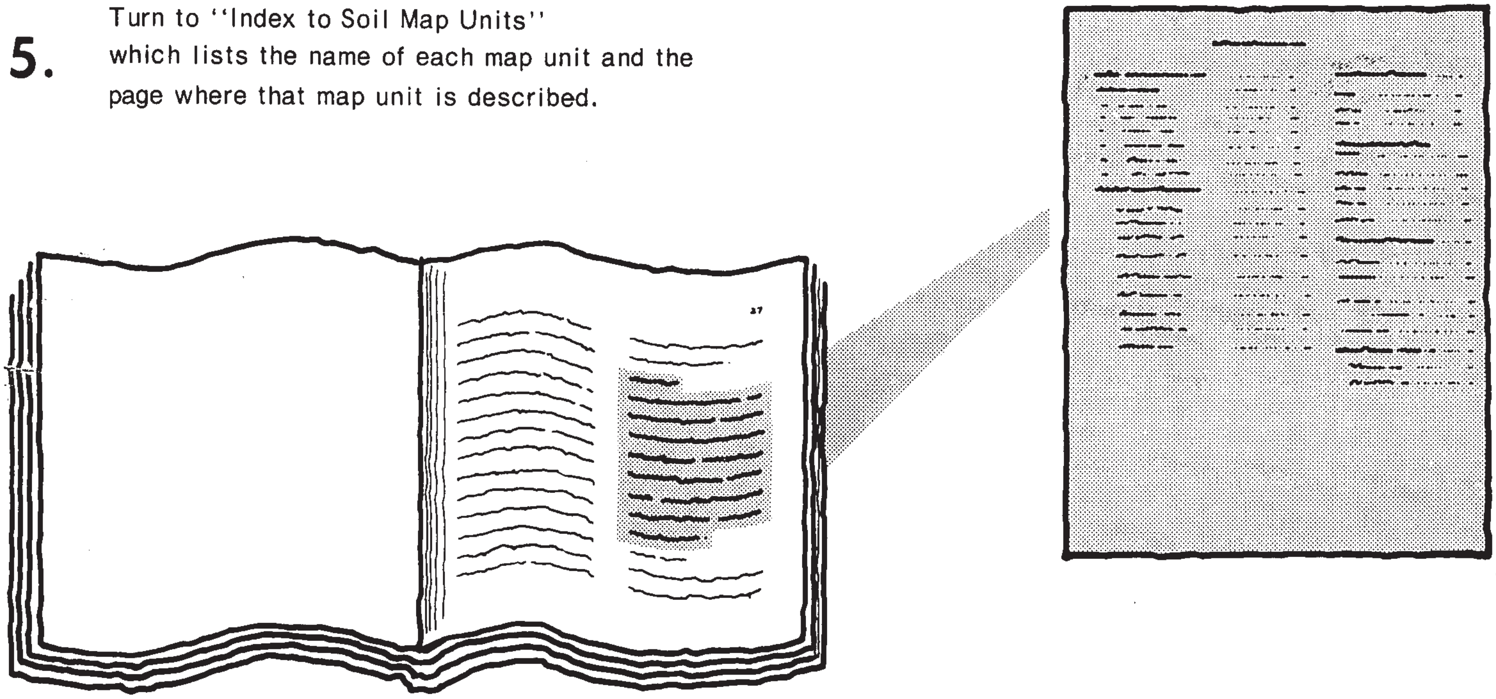
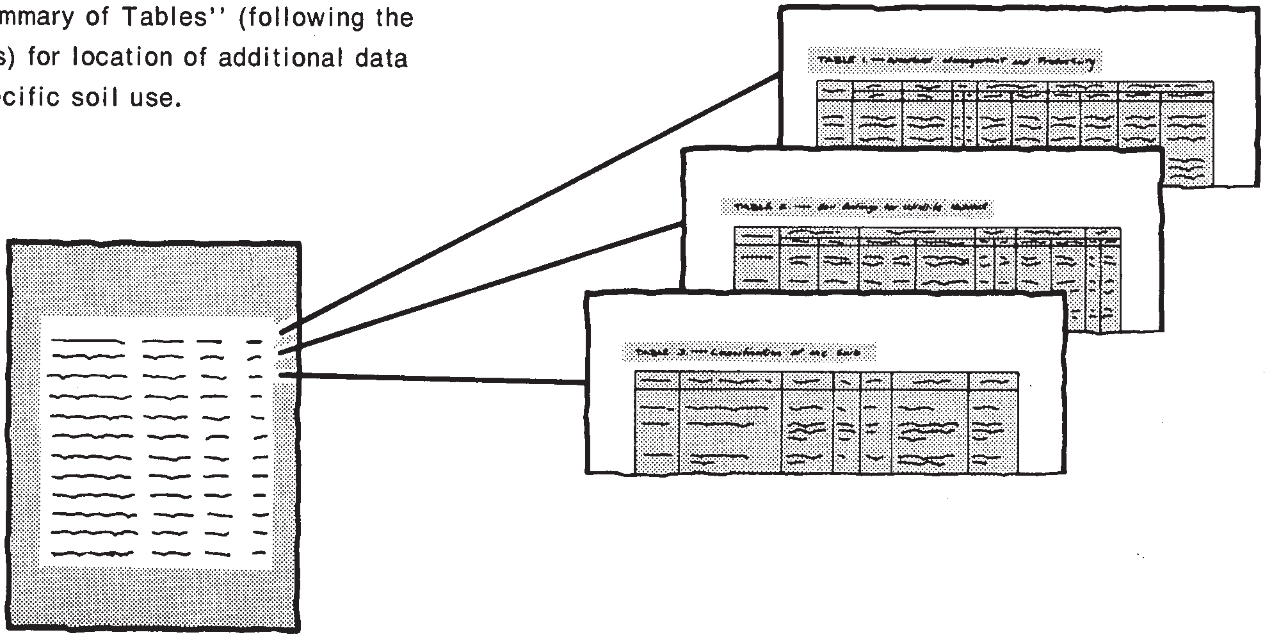
THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; for specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

This survey was made cooperatively by the Soil Conservation Service and the Missouri Agricultural Experiment Station. It is part of the technical assistance furnished to the Soil and Water Conservation Districts of Cape Girardeau, Mississippi, and Scott Counties. Financial assistance was provided to the Soil and Water Conservation Districts by the county courts, private businesses, cities, and individuals. Each Soil and Water Conservation District provided personnel to assist with the field work. The Missouri Department of Natural Resources contributed funds to assist with map finishing. Major fieldwork was performed in the period 1973-77. Soil names and descriptions were approved in 1978 Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1978.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Traffic on the Mississippi River plays a major role in the agriculture and industrial strength of this survey area.

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foreword

This soil survey contains information that can be used in land-planning programs in Cape Girardeau, Mississippi, and Scott Counties. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

The soil survey of Cape Girardeau, Mississippi, and Scott Counties was initiated at the request of local residents for their use. The Soil and Water Conservation District of each County hired a soil scientist to aid in the survey. These were the first districts in Missouri to provide their own soil scientists.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

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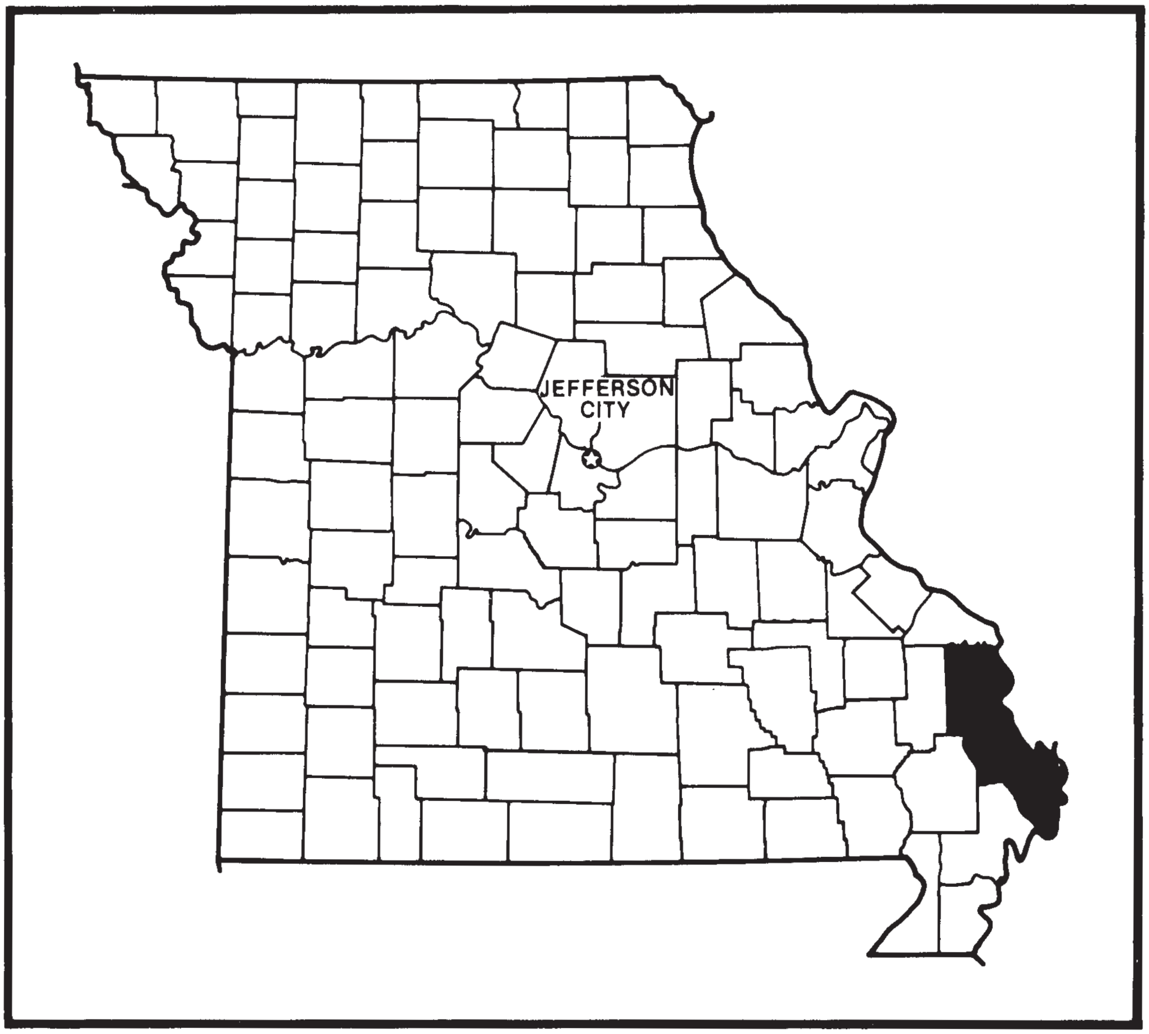
JEFFERSON CITY

Location of Cape Girardeau, Mississippi, and Scott Counties in Missouri.

soil survey of

Cape Girardeau, Mississippi, and Scott Counties, Missouri

By D. F. Festervand, Soil Conservation Service

Fieldwork by D. F. Festervand, Party Leader; Burton L. Brown William M. Knight, Ronald C. Renkoski, Leslie W. Tobin, Richard L. Tummons, and Kees W. Vandermeer, Soil Conservation Service. Kenneth J. Crader, Soil and Water Conservation District, Cape Girardeau County. Michael W. Wehmeyer, Soil and Water Conservation District, Scott County. Dennis K. Potter, Soil and Water Conservation District, Mississippi County.

Daniel J. Ernstrom, Party Leader, Soil Conservation Service; and Richard D. Douglas, Soil and Water Conservation District, Mississippi County, Missouri, also made significant contributions to this survey.

United States Department of Agriculture, Soil Conservation Service, in cooperation with the Missouri Agricultural Experiment Station.

general nature of the survey area

Cape Girardeau, Mississippi, and Scott Counties are located in the southeastern part of Missouri. Mississippi and Scott Counties are part of what is known as the "Bootheel" because of the outline of the area. Jackson is the county seat of Cape Girardeau County, and in 1970 the county population was 49,350. Charleston is the county seat of Mississippi County, and in 1970 the county population was 16,647. Benton is the county seat of Scott County, and in 1970 the county population was 33,250. The survey area is about 78 miles in length from north to south and is 34 miles wide at the widest point. The widest point occurs across the south end of Scott County and the north end of Mississippi County. The southernmost part of Mississippi County is only about 5 miles wide. The survey area has a total of 1,439 square miles, or 920,960 acres. Of this, 1,410 square miles, or 902,400 acres, is land and the remaining area is water.

The lower part of Cape Girardeau County is part of the Southern Mississippi Valley Alluvium land resource area, and the remainder of the county is part of the Central Mississippi Valley Wooded Slopes area (*3*). About 83 percent of this county is in the uplands. The remaining 17 percent is in the Mississippi River Delta. The upland part of the county consists mainly of wind-blown (loess) soil. In the western, north-central, and eastern parts of the county, however, there are soils that formed in place and weathered from limestone, sandstone, and shale.

Mississippi County is part of the Southern Mississippi Valley Alluvium land resource area.

Scott County is also part of the Southern Mississippi Valley Alluvium land resource area. About 82 percent of the county is in the Mississippi River Delta. The remaining area is not a part of the delta but is upland. The upland part of the county consists of wind-blown (loess) soil. In the Mississippi River Delta, the land is relatively flat. There are normally only gradual changes in elevation. In the central part of Scott County there are sandy natural levees and ridges that have elevation changes of as much as 30 to 40 feet. The delta part of the survey area includes old stream channels and natural levees or terraces formed by ancient streams.

Elevations range from about 290 feet in the southern part of Mississippi County to 700 feet in the eastern part of Cape Girardeau County.

Agriculture is the main industry in the survey area. Soybeans, corn, wheat, cotton, and grain sorghum are the major cultivated crops. In the uplands the less sloping areas are cultivated or pastured. The steeper areas are used for pasture, hay, orchards, and woodland. In the Mississippi Delta the major concerns in farming are wetness and droughtiness. Many areas have been graded and most areas have ditches to help eliminate wetness. Supplemental irrigation is very beneficial on some soils and is essential on sandy soils in order to obtain profitable yields. In the uplands, water erosion is the major concern. Contour farming and terraces help to control erosion.

The first soil survey of Cape Girardeau County was published in 1910 (*15*). A soil survey for Mississippi County was published in 1921 (*16*). This survey updates the previous surveys and provides additional information and larger maps that show the soils in more detail.

history and development

It is believed by many that the original inhabitants of southeast Missouri, from approximately 400 B.C. to 700 A.D., were the Mound Builders. These prehistoric people had cities similar to those of ancient Mexico which were each inhabited by several thousand people. Mississippi County is near the center of this former vast empire (*14*).

As early as 1540 Hernando De Soto penetrated to the Arkansas River and perhaps well into southeastern Missouri. From this time into the early 1800's this part of the State of Missouri was inhabited by such Indian tribes as the Casquins, Capahas, Osage, Delaware, Pottawatomie, Wyandottes, Ottawas, Peorias, and Shawnee. In the 1830's the Cherokee Indians passed through the Cape Girardeau-Jackson area on their removal from the eastern United States, west to Indian Territory.

By the secret Treaty of Fontainbleau in 1762, France ceded the Louisiana Territory to Spain. By the time the United States gained possession of this territory in 1803, however, much of the French and Spanish influence had been erased.

On December 16, 1811, the entire "Bootheel" was shaken by an earthquake. The tremor caused little damage but badly frightened the residents. On January 23, 1812, another earthquake struck the area that caused more damage than the first one and resulted in some personal injury to residents. In 1817, Congress passed an act for the relief of the sufferers of the New Madrid earthquake. By this time, however, many people had moved north and west for fear of further tremors. This slowed the progress of the area, especially the area around New Madrid, until 1820 when Missouri became a state.

Cape Girardeau County was established in 1818, Mississippi County in 1845, and Scott County in 1821. By these dates the towns and villages within these counties had already begun to grow and prosper.

Early residents used waterways for much of their transportation. Later two historically important roads were constructed. They were the El Camino Real, or Kings Road, from New Madrid to St. Louis and the road from Point Pleasant in New Madrid to Malden Prairie. It was along these two roads that early settlements were most numerous. The first railroad was built in 1893-94. The great drainage projects which reached completion in the 1920's brought forth a railroad boom. The flat land and abundant timber made railroad construction a profitable business.

Currently these counties are served by two interstate highways, I-55 and I-57; several state highways, Missouri Highways 25, 60, 61, 62, and 72; and many county and private roads.

climate

Prepared by the National Climatic Center, Asheville, North Carolina.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Cape Girardeau in the period 1960 to 76 and at Sikeston in the period 1951 to 76. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring for both locations. Table 3 provides data on length of the growing season.

In winter the average temperatures at Cape Girardeau and Sikeston are 35 and 37 degrees F, respectively, and the average daily minimum temperature is 26 degrees at Cape Girardeau and 28 degrees at Sikeston. The lowest temperature on record, which occurred at Cape Girardeau on January 24, 1963, is -14 degrees. In summer the average temperature is 77 degrees at Cape Girardeau and 78 degrees at Sikeston. The average daily maximum temperature is 89 degrees. The highest recorded temperature, which occured at Sikeston on June 30, 1952, is 106 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 45 inches at Cape Girardeau and 47 inches at Sikeston. Of this, 23 inches, or 50 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 12.76 inches. The heaviest 1-day rainfall during the period of record was 5.92 inches at Sikeston on September 11, 1965. Thunderstorms occur on about 50 days each year, and most occur in summer.

Average seasonal snowfall is 11 inches at Cape Girardeau and 6 inches at Sikeston. The greatest snow depth at any one time during the period of record was 9 inches at Cape Girardeau. On an average of 9 days at Cape Girardeau and no days at Sikeston at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 80 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 11 miles per hour, in March.

relief

This survey area consists of two broad landforms; the Mississippi River bottom land and the uplands. Cape Girardeau is made up of about 83 percent uplands and 17 percent Mississippi River bottom land. According to Stout (*10*) the central part of the uplands in Cape Girardeau County is made up of isolated rolling plains. The western and eastern parts of the county are made up of highly dissected plains. These two areas are covered by varying thicknesses of loess. The loess is thickest along the Mississippi River and gets thinner as one moves westward. In the eastern and western parts of the county, residual soils are on strongly sloping and steep side slopes. Most of the uplands in this county range from 400 to 600 feet in elevation. The highest area of the county is near the Trail of Tears Park, and it ranges in elevation up to about 800 feet. The lower part of Cape Girardeau County is part of the flat lowlands.

In Scott County the area known as the Benton Hills is made up of dissected ridges that are about 600 feet in elevation. The remainder of this county and all of Mississippi County are made up of the Mississippi River bottom land, or flat lowlands. The lowest point in the survey area is in the southern part of Mississippi County, and it is 290 feet in elevation.

The bottom land in this survey area includes backswamps, mixed alluvium in braided stream patterns, natural levees, and recent alluvial deposits. Backswamp deposits are thick clayey sediments in nearly level to depressional areas. Mixed alluvium is on first bottoms and low natural levees of former braided streams. Natural levees are remnants of former flood plains that are the oldest and highest elevations on the bottoms. They consist of loamy and sandy alluvium. Recent deposits consist of stratified loamy alluvium and are in and adjacent to the present Mississippi River flood plain.

drainage

The southeastern part of this State had an area referred to as the Great Swampland which lay useless for many years. In 1850 the Federal Government gave the swampland to the State of Missouri and the State gave it to the counties within whose borders it lay. This area was more or less forgotten for years, mainly because of the War Between the States.

As early as 1901 Mississippi County had six ditching districts, and by 1910, 170 miles of public ditches had been dug. In 1905 an interested group met in Cape Girardeau and discussed the formation of the Little River Drainage District. A bill to form such a district became effective on April 8, 1907. This district covers parts of Bollinger, Cape Girardeau, Dunklin, New Madrid, Pemiscot, Scott, and Stoddard Counties. By 1928 about 875 miles of drainage ditches opened up over one-half million acres for agricultural use, making it the largest drainage system in the world at that time. Presently the Little River Drainage District has 958 miles of ditches and 304 miles of levees.

The Little River Drainage District is divided into the Headwater Diversion System and the Lower District. The Headwater Diversion System consists of a channel across the lower end of Cape Girardeau County that drains into the Mississippi River. This channel provides an outlet to the Mississippi River from parts of seven counties and has a total of about 1,200 square miles of drainage area. It accounts for a large part of the drainage area of Cape Girardeau County. The eastern and northeastern parts of the county drain directly into the Mississippi River. The Lower District extends south of the Headwater Diversion System to the Missouri-Arkansas State line and provides drainage for the lower part of Cape Girardeau County and parts of the remaining bootheel counties.

how this survey was made

Soil scientists made this survey to learn what soils are in the survey area, where they are, and how they can be used. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; and the kinds of rock. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by leaching or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied and compared those profiles with others in nearby counties and in more distant places. They classified and named the soils according to nationwide, uniform procedures. They drew the boundaries of the soils on aerial photographs. These photographs show trees, buildings, fields, roads, and other details that help in drawing boundaries accurately. The soil maps at the back of this publication were prepared from aerial photographs.

The areas shown on a soil map are called map units. Most map units are made up of one kind of soil. Some are made up of two or more kinds. The map units in this survey area are described under "General soil map units" and "Detailed soil map units."

While a soil survey is in progress, samples of some soils are taken for laboratory measurements and for engineering tests. All soils are field tested to determine their characteristics. Interpretations of those characteristics may be modified during the survey. Data are assembled from other sources, such as test results, records, field experience, and state and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, woodland managers, engineers, planners, developers and builders, home buyers, and others.

general soil map units

The general soil map at the back of this publication shows broad areas called soil associations that have a distinctive pattern of soils, relief, and drainage. Each association on the general soil map is a unique natural landscape. Typically, a soil association consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one association can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Most of the land in the survey area is cropland; Cape Girardeau County is 69 percent cropland, Mississippi County is 87.5 percent, and Scott County is 77 percent (*5, 4*). However, in 1972 there were about 91,000 acres of woodland in Cape Girardeau County, 18,000 acres in Mississippi County, and 13,800 acres in Scott County. There are small acreages of orchards, vineyards, and strawberries in Cape Girardeau and Scott Counties and small acreages of watermelons and cantaloups in Scott County.

As a general rule, soils that have the fewest limitations for crops are also the soils with fewest limitations for nonfarm uses. The descriptions of soil associations are helpful in selecting large areas of soils that have the same or similar potentials or limitations. Soil association 16 is generally regarded as the area with the most potential and fewest limitations. This soil has fair to good drainage and is situated in positions that generally are not affected by wetness. Soil associations 4, 5, 6, 10, 11, 12 13, 17, and 18 have good potential for farming but only fair to poor potential for nonfarm uses. In these associations wetness is the major limitation for nonfarm uses; however, many areas have sufficiesnt drainage for farm crops. Associations 1, 2, 8 and 9 have fair to good potential for woodland. This use is also effective in controlling erosion.

Deciding which land should be used for urban development is becoming more important in the survey area. Each year a few more acres are developed for residential and commercial uses. It is estimated that about 16,115 acres of Cape Girardeau County, 4,695 acres of Mississippi County, and 12,751 acres of Scott County are built up or used for urban development (*9*). This section is helpful for planning the future expansion of such built-up areas.

Associations 8, 9, and 16 are the most favorable areas for urban development. The slope in associations 8 and 9 presents some difficulty in construction and waste disposal. However, these limitations can generally be overcome by modifying the slope and properly designing and installing footings and waste disposal systems. The frequency and duration of flooding in drainageways should be taken into consideration when locating houses and streets.

soil associations

gently sloping to very steep, silty, cherty, and loamy soils; on uplands

This group of associations make up about 27 percent of Cape Girardeau County. These soils are used primarily for pasture and woodland, and some of the less sloping areas are cultivated. In some areas, the use of these soils for residential development is increasing. Major concerns of management are overgrazing, timber stand improvement, and erosion of cultivated soils.

1. Peridge-Poynor associaton

Moderately sloping to steep, well drained silty and cherty soils formed in loess and limestone residuum or in residuum weathered from cherty limestone and shale

This soil association (fig. 1) consists of loess-capped ridgetops and hillsides. Valleys are relatively narrow, generally no more than one-fourth mile wide.

This association covers about 9 percent of Cape Girardeau County. About 40 percent is Peridge soils, 40 percent is Poynor soils, and 20 percent is soils of minor extent.

Peridge soils are moderately sloping to moderately steep. They are on ridgetops and hillsides. Typically, the surface layer is dark grayish brown silt loam about 2 inches thick. The subsurface layer is yellowish brown silt

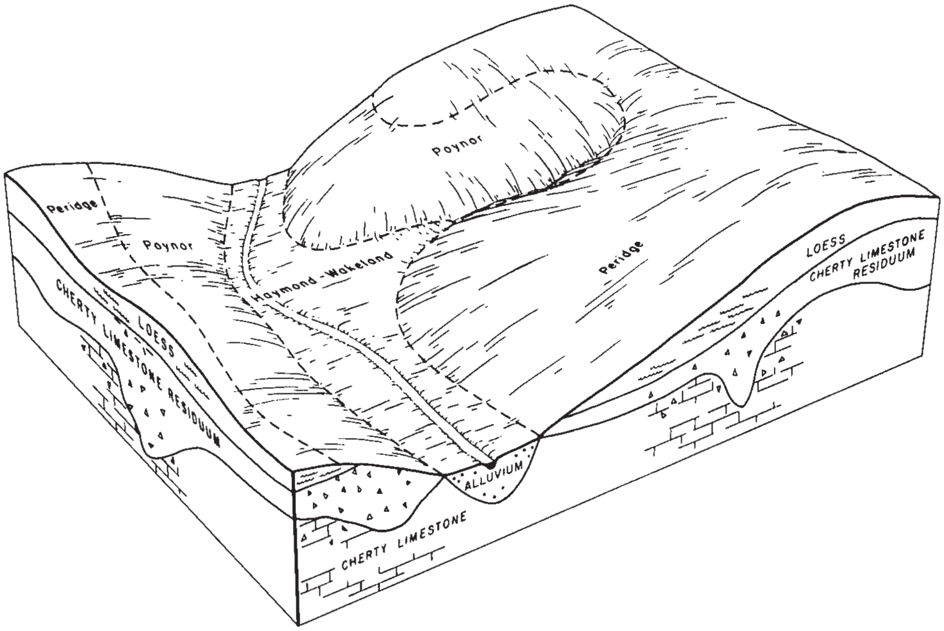

Figure 1.—Typical pattern of soils and underlying material in the Peridge-Paynor association.

loam about 5 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is strong brown silty clay loam, the middle part is yellowish red silty clay loam, and the lower part is red cherty silty clay loam and dark red silty clay.

Poynor soils are moderately steep and steep. They are on hillsides and in the upper reaches of drainageways. Typically, the surface layer is brown cherty silt loam about 4 inches thick. The subsurface layer is yellowish brown cherty silt loam about 6 inches thick. The subsoil extends to a depth of 64 inches or more. The upper part is strong brown cherty silt loam and yellowish red cherty silty clay loam, and the lower part is red silty clay.

The minor soils in this association are the somewhat excessively drained Elsah soils, the well drained Haymond soils, the somewhat poorly drained Wakeland soils on stream bottoms, and the well drained Menfro soils on ridgetops and toe slopes.

The soils in this association are mostly used for timber production, pasture, and wildlife habitat. A few ridgetops, toe slopes, and stream bottoms are wide enough to be used for cultivated crops.

The main requirements for timber management are selective cutting, stand improvement, and fire control. These practices also improve the habitat for wildlife. Pastures need maintenance of fertility and protection from overgrazing. These soils are well suited to woodland wildlife habitat. The principal wildlife species are white-tailed deer, squirrels, raccoons, and wild turkey.

2. Menfro-Holstein association

Gently sloping to moderately steep, well-drained silty and loamy soils formed in loess or in material weathered from sandstone, limestone, and shale

This soil association consists of loess-covered ridgetops and hillsides.

This soil association covers about 7 percent of Cape Girardeau County. About 60 percent is Menfro soils, 33 percent is Holstein soils, and 7 percent is soil of minor extent.

Menfro soils are gently sloping to moderately steep. They are on loess-covered ridgetops and side slopes. Typically, the surface layer is dark yellowish brown silt loam about 7 inches thick. The subsoil is about 31 inches thick. The upper part is yellowish brown silt loam, the middle part is brown silty clay loam, and the lower part is dark yellowish brown silty clay loam. The substratum to a depth of 60 inches or more is yellowish brown silt loam.

Holstein soils are strongly sloping to moderately steep. They are on hillsides. They formed from weathered sandstone, limestone, and shale and commonly are overlain by a layer of loess of varying thickness. Most areas of this soil are in the Menfro-Holstein complex. Typically, the surface layer is dark brown loam. The subsurface layer is dark yellowish brown loam. The subsoil extends to a depth of about 65 inches or more. The upper part is yellowish red clay loam, the middle part is red clay loam, and the lower part is yellowish red sandy clay loam.

The minor soils in this association are in the Haymond and Wakeland series. These soils are on narrow stream bottoms and are silty throughout.

The soils in this association are mostly used for pasture, woodland, and cultivated crops. The main enterprises are cash crops, livestock production, and timber production. These soils are suited to small grains and livestock farming and to orchards, vineyards, and openland and woodland wildlife habitat.

Some of the larger ridgetops are used for cultivated crops. The strongly sloping and moderately steep areas are normally in pasture or woodland. In cultivated areas, erosion is the main concern of management. In the steeper areas overgrazing, selective cutting, stand improvement, and control of fire are the main concerns of management. Natural fertility is medium, organic matter content is low to moderately low, and the available water capacity is high.

3. Menfro-Clarksville association

Moderately sloping to very steep, well drained and somewhat excessively drained silty and cherty soils formed in loess and in cherty limestone residuum

This soil association (fig. 2) consists of loess-capped ridges and hills. On many of the side slopes the chert is exposed. The side slopes are long and steep to very steep, and the ridgetops are winding and narrow. The drainage pattern is complex, and drains cut deeply into the landscape. Valleys are deep and narrow, generally less than one-quarter mile wide.

This association covers about 11 percent of Cape Girardeau County. Menfro and Clarksville soils mapped as a complex make up about 70 percent of the association. Of this, about 50 percent is Menfro soils, 40 percent is Clarksville soils, and 10 percent is soils of minor extent. Menfro soils mapped separately make up about 25 percent of the association. The remaining 5 percent is minor soils.

Menfro soils are well drained and moderately sloping to steep. They are on ridgetops and hillsides. Typically, the surface layer is very dark grayish brown silt loam about 3 inches thick. The subsurface layer is brown silt loam about 5 inches thick. The subsoil extends to a depth of 60 inches or more. It is brown silt loam and silty clay loam.

Clarksville soils are steep and very steep. They are on side slopes. All areas of this somewhat excessively drained soil are mapped in the Menfro-Clarksville complex. Typically, the surface layer is very dark grayish brown cherty silt loam about 3 inches thick. The subsurface layer is yellowish brown cherty silt loam about 5 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is strong brown very cherty silt loam, the middle part is strong brown very

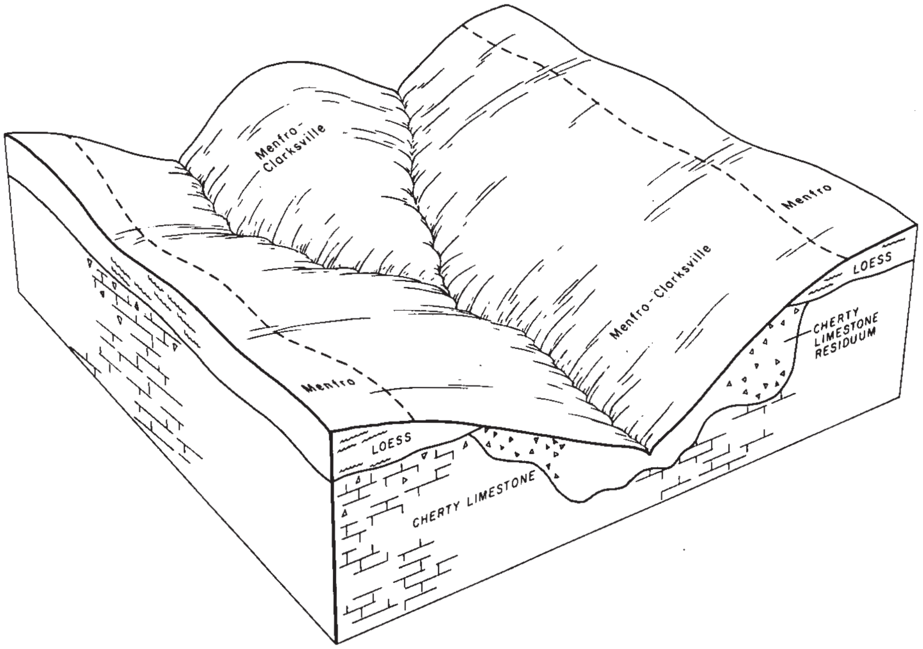

Figure 2.—Typical pattern of soils and underlying material in the Menfro-Clarksville association.

cherty silty clay loam, and the lower part is yellowish red very cherty silty clay.

The minor soils in this associaton are in the Haymond, Elsah, and Wakeland series. These soils are on narrow stream bottoms and are somewhat excessively drained to somewhat poorly drained.

Most of the soils in this association are used for woodland, pasture, wildlife habitat, and recreation. The use of these soils as sites for mobile homes and permanent residences is increasing.

The potential for woodland and for woodland wildlife habitat is fair. The main requirements of management are selective cutting, stand improvement, and control of fire. These practices also improve the habitat for wildlife. The principal species are white-tailed deer, squirrels, and raccoons.

nearly level, silty, loamy, and sandy soils; on flood plains

This group of associations makes up about 22 percent of Cape Girardeau County, 4 percent of Mississippi County, and 25 percent of Scott County. These soils are used primarily for cultivated crops and for some hay and pasture. Major concerns of management are flooding and surface drainage.

4. Haymond-Wakeland association

Nearly level, well drained and somewhat poorly drained silty soils formed in alluvium

This soil association consists of soils on flood plains along streams and rivers in the area, other than the Mississippi River.

This soil association covers about 12 percent of Cape Girardeau County. About 70 percent is Haymond soils, 20 percent is Wakeland soils, and 10 percent is soils of minor extent.

Haymond soils are nearly level and are well drained. They generally are in areas along and adjacent to stream or creek channels. Typically, the surface layer is dark brown silt loam about 6 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is dark brown silt loam, the middle part is dark brown and brown silt loam, and the lower part is brown, mottled silt loam.

Wakeland soils are nearly level and are somewhat poorly drained. They generally are in areas bordering the uplands. Typically, the surface layer is dark brown silt loam about 5 inches thick. The subsurface layer is brown silt loam about 7 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is grayish brown, mottled silt loam, and the lower part is light brownish gray, mottled silt loam.

The minor soil in this association is in the Wilbur series. This soil is moderately well drained and silty throughout. It occurs in nearly level to slightly depressional areas on broad stream bottoms.

Nearly all areas of this association are used for cultivated crops, hay, or pasture. A few areas are in timber. The main enterprises are the production of cash crops and dairy and livestock farming. These soils have high potential for all crops commonly grown in the area.

Corn, soybeans, small grains, hay, and pasture grow well on the soils in this association. Natural fertility is high, available water capacity is very high, and organic matter content is low to moderately low. The main concerns of management are flooding, poor surface drainage, and maintaining fertility.

5. Adler-Falaya association

Nearly level, moderately well drained and somewhat poorly drained silty soils formed in alluvium

This soil association consists of soils on alluvial fans and natural levees of the Mississippi River flood plain and on smaller stream bottoms in the uplands.

This soil association covers about 10 percent of Cape Girardeau County and about 11 percent of Scott County. In Cape Girardeau County about 35 percent is Adler soils, 50 percent is Falaya soils, and 15 percent is soils of minor extent. In Scott County about 65 percent is Adler soils, 20 percent is Falaya soils, and 15 percent is soils of minor extent.

Adler soils are nearly level and moderately well drained. Typically, the surface layer is dark brown silt loam about 8 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is brown silt loam, the middle part is brown, mottled silt loam, and the lower part is brown stratified silt loam.

Falaya soils are nearly level and are somewhat poorly drained. Typically, the surface layer is dark brown silt loam about 6 inches thick. The substratum extends to a depth of about 60 inches. The upper part is dark grayish brown, mottled silt loam, and the lower part is grayish brown, mottled silt loam.

The minor soils in this association are in the Commerce and Dundee series. Commerce soils are in the lower lying areas and are somewhat poorly drained. Dundee soils are also somewhat poorly drained but are on the low lying terraces.

Most of this association is intensively cultivated. A few small areas are in pasture and woodland. These soils have high potential for all cultivated crops commonly grown in the area.

Corn, soybeans, grain sorghum, wheat, and red clover are the main crops grown on these soils. The available water capacity is very high, natural fertility is high, and the organic matter content is moderately low. The main concerns of management are improvement of drainage and maintaining tilth.

6. Sikeston association

Nearly level, poorly drained loamy soils formed in alluvium

This soil association is located in depressional areas, channels, and sunken lowlands of former Mississippi and Ohio River flood plains. It is surrounded by terraces or old natural levees that are loamy and sandy.

This association covers about 4 percent of Mississippi County and about 8 percent of Scott County. In Mississippi County about 65 percent is Sikeston soils and about 35 percent is minor soils. In Scott County about 75 percent is Sikeston soils and about 25 percent is soils of minor extent.

Sikeston soils are nearly level and poorly drained. They are in depressional areas and old stream channels. Typically, the surface layer is very dark gray loam about 6 inches thick. The subsurface layer is 31 inches thick. The upper part is very dark gray, mottled clay loam, and the lower part is very dark gray and dark gray, mottled loam. The substratum extends to a depth of 60 inches or more. The upper part is grayish brown, mottled loam, and the lower part is dark grayish brown and grayish brown loamy sand.

The minor soils in this association are in the Diehlstadt, Cairo, Lilbourn, and Roellen series. Diehlstadt soils occupy the slightly higher areas adjacent to the Sikeston soils. Cairo and Roellen soils are in the lower part of the depressions or old channels. Lilbourn soils are on narrow ridges.

The soils in this association are used almost entirely for cultivated crops, but a few undrained areas are in pasture. The main enterprise is the production of cash crops. These soils have high potential for all cultivated crops commonly grown in the area if they are properly drained.

Soybeans, wheat, corn, and cotton grow well on soils in this association. Available water capacity, natural fertility, and organic matter content are high. The main concerns of management are improvement of drainage and maintaining tilth. Land leveling and timely tillage are essential for the success of crops.

7. Diehlstadt association

Nearly level, somewhat poorly drained sandy and loamy soils formed in alluvium

This soil association is on flood plains of the Mississippi and Ohio Rivers.

This soil association covers about 6 percent of Scott County. About 80 percent is Diehlstadt soils, and 20 percent is soils of minor extent.

Diehlstadt soils are nearly level and depressional and are somewhat poorly drained. Typically the surface layer is black loamy coarse sand or sandy clay loam about 7 inches thick. The subsurface layer is black loamy coarse sand about 11 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is very dark gray fine sand, the middle part is multicolored stratified sand, and the lower part is brown fine sand.

The minor soils in this association are in the Cairo, Clana, and Scotco series. The poorly drained Cairo soils are in the lowest part of the flood plain. The moderately well drained Clana soils and excessively drained Scotco soils are on ridges or terraces between the old stream channels.

The soils in this association are used for cultivated crops. A few small areas still remain in timber, and a few small areas are in pasture. The main enterprise is cash crops. These soils have low to fair potential for all cultivated crops commonly grown in the area.

Corn, soybeans, wheat, and cotton are the main crops. Available water capacity is low, natural fertility is high, and organic matter content is moderate. The main concerns of management are surface drainage and droughtiness. Crop yields on most of this association are low unless irrigation is provided.

gently sloping to very steep, silty soils; on uplands

This group of associations makes up about 46 percent of Cape Girardeau County and 19 percent of Scott County. These soils are used for cultivated crops, pasture, hay, woodland, and some orchards. Major concerns of management are control of erosion, overgrazing, and timber stand improvement.

8. Menfro association

Gently sloping to steep, well drained silty soils formed in loess

This soil association (fig. 3) consists of soils on uplands adjacent to the Mississippi River flood plain. It is characterized by long, broad ridgetops and by hillsides. This soil association also includes a few areas of karst (sinkhole) topography.

This soil association covers about 44 percent of Cape Girardeau County. About 80 percent is Menfro soils, and 20 percent is soils of minor extent.

Menfro soils are gently sloping to steep. Typically, the surface layer is dark brown silt loam about 8 inches thick. The subsoil extends to a depth of about 76 inches. It is brown silt loam and silty clay loam.

The minor soils in this association are in the Bucklick, Haymond, Iva, and Wakeland series. The well drained, strongly sloping to moderately steep Bucklick soils are on the lower side slopes and foot slopes and along shallow drainageways. The well drained Haymond soils and somewhat poorly drained Wakeland soils are on narrow bottom land. The somewhat poorly drained, gently sloping Iva soils are on ridgetops and foot slopes.

Most of the soils in this association are used for row crops, small grains, pasture, hay, and woodland. The main enterprises are cash crops, livestock, and woodland. These soils have high potential for orchards, vineyards, and woodland wildlife habitat.

Corn, small grains, pasture, and hay grow well on these soils. Available water capacity is high, natural fertility is medium, and organic matter content is moderately low. The main concerns of management are

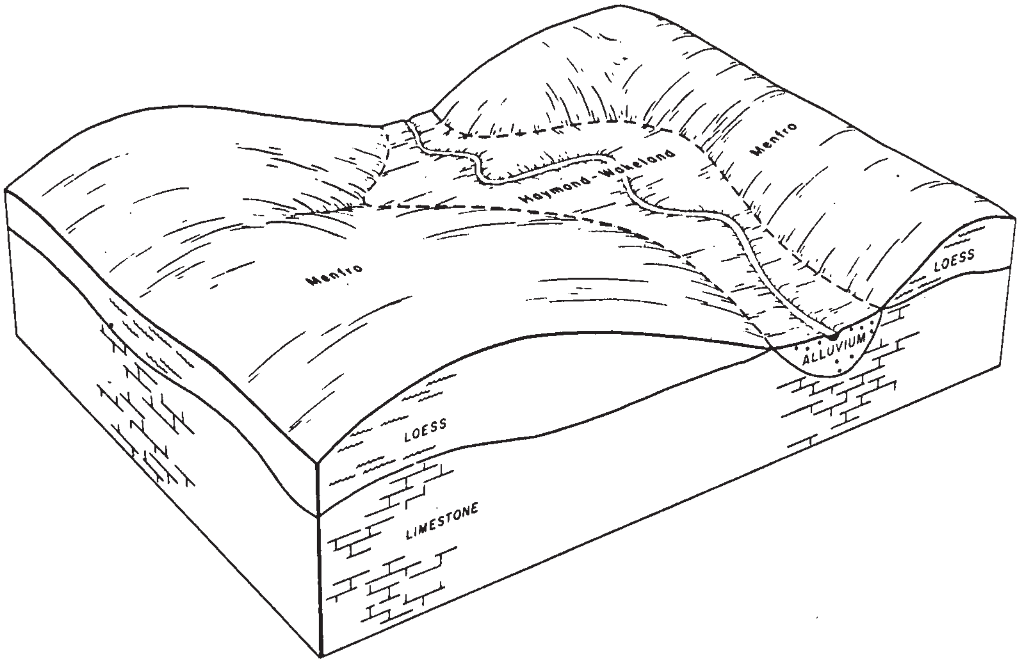

Figure 3.—Typical pattern of soils and underlying material in the Menfro association.

control of water erosion, overgrazing, timber stand improvement, and control of fire.

9. Memphis association

Gently sloping to very steep, well drained silty soils formed in loess

This soil association consists of soils on crooked, narrow ridgetops and on hillsides. It occupies the upland part of Cape Girardeau County referred to as "Hickory Ridge." It occupies areas in Scott County commonly referred to as the "Benton Hills" and "Bird Hill."

This soil association covers about 2 percent of Cape Girardeau County and about 19 percent of Scott County. In Cape Girardeau County, about 80 percent is Memphis soils and 20 percent is soils of minor extent. In Scott County, about 85 percent is Memphis soils and 15 percent is soils of minor extent.

Memphis soils are gently sloping to very steep. They are on ridgetops and side slopes and are well drained. Typically, the surface layer is dark brown silt loam about 3 inches thick. The subsurface layer is dark yellowish brown silt loam about 4 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is yellowish brown silt loam, the middle part is yellowish brown silty clay loam, and the lower part is yellowish brown and brown silty clay loam.

The minor soils in this association are in the Adler, Falaya, and Saffell series. Adler soils are moderately well drained, and Falaya soils are somewhat poorly drained. These two soils are on narrow stream bottoms. Saffell soils occur only in Scott County on the extreme southeastern edge of the Benton Hills. Saffell soils are well drained, contain gravel throughout, and occupy steep and very steep side slopes.

Most of the soils in this association are used for cultivated crops, pasture, hay, orchards, and woodland. The main enterprises are cash crops, livestock, and timber production. The less sloping areas of these soils have high potential for cultivated crops.

Corn, soybeans, wheat, grain sorghum, pasture, hay, and orchards grow well on these soils. Cultivated crops should be grown in the moderately sloping and gently sloping areas. The more sloping areas are better suited to pasture, hay, orchards, and woodland. Available water capacity is high, natural fertility is medium, and the organic matter content is moderately low. The main concerns of management are control of water erosion and maintaining tilth and fertility. The soils in this association are highly susceptible to water erosion. Some areas are so eroded or gullied that reclamation would be required to make the land usable for farming.

nearly level, silty and loamy soils; on levees, terraces, and flood plains

This group of associations makes up about 3 percent of Cape Girardeau County, 33 percent of Mississippi County, and 5 percent of Scott County. These soils are used almost entirely for cultivated crops, but a few areas are in pasture and timber. Major concens of management are improvement of surface drainage and, in some areas, flooding.

10. Dundee-Dubbs-Jackport association

Nearly level, somewhat poorly drained, well drained, and poorly drained silty soils formed in alluvium

This soil association (fig. 4) consists of soils on old natural levees or terraces bordering former channels of the Mississippi River and its tributaries. Slopes are dominantly nearly level; however, some areas on the fringe of the surrounding depressions or channels are gently sloping.

This soil association occupies about 2 percent of Cape Girardeau County. About 40 percent is Dundee soils, 25 percent is Dubbs soils, and 20 percent is Jackport soils. Also, about 15 percent is soils of minor extent.

Dundee soils are nearly level and somewhat poorly drained. They are in slightly depressional areas on natural levees or terraces. Typically, the surface layer is dark grayish brown silt loam about 8 inches thick. The subsoil is about 34 inches thick. The upper part is mottled brown, yellowish brown, and light brownish gray silt loam; the middle part is grayish brown silty clay loam; and the lower part is grayish brown, mottled silty clay loam. The substratum to a depth of 60 inches or more is brown and grayish brown silt loam.

Dubbs soils are nearly level and well drained. They are in the highest areas on the natural levees or terraces. Typically, the surface layer is dark brown silt loam about 9 inches thick. The subsoil is about 31 inches thick. The upper part is yellowish brown silty clay loam, the middle part is dark brown silty clay loam, and the lower part is dark brown loam. The substratum extends to a depth of 60 inches or more. The upper part is yellowish brown loamy sand, and the lower part is light yellowish brown sand.

Jackport soils are clayey and are nearly level and poorly drained. They are in broad depressional areas on natural levees or terraces. Typically, the surface layer is dark grayish brown silty clay loam about 5 inches thick. The subsoil is about 53 inches thick. It is grayish brown, firm, very strongly acid clay. The substratum to a depth of 63 inches or more is mottled, dark brown and grayish brown silty clay.

The minor soils in this association are in the Adler and Falaya series. Adler soils are moderately well drained, and Falaya soils are somewhat poorly drained. These soils are adjacent to the major soils in this association and in fringe areas.

Most of the soils in this associaton are used for cultivated crops, but a few areas are in pasture. A few wet areas are in timber. These soils have high potential for all cultivated crops commonly grown in the area.

Corn, soybeans, wheat, and grain sorghum grow well on these soils. Available water capacity is moderate to high, natural fertility is medium to high, and organic matter content is moderately low to low. The main concerns of management are improvement of drainage and maintaining tilth and fertility.

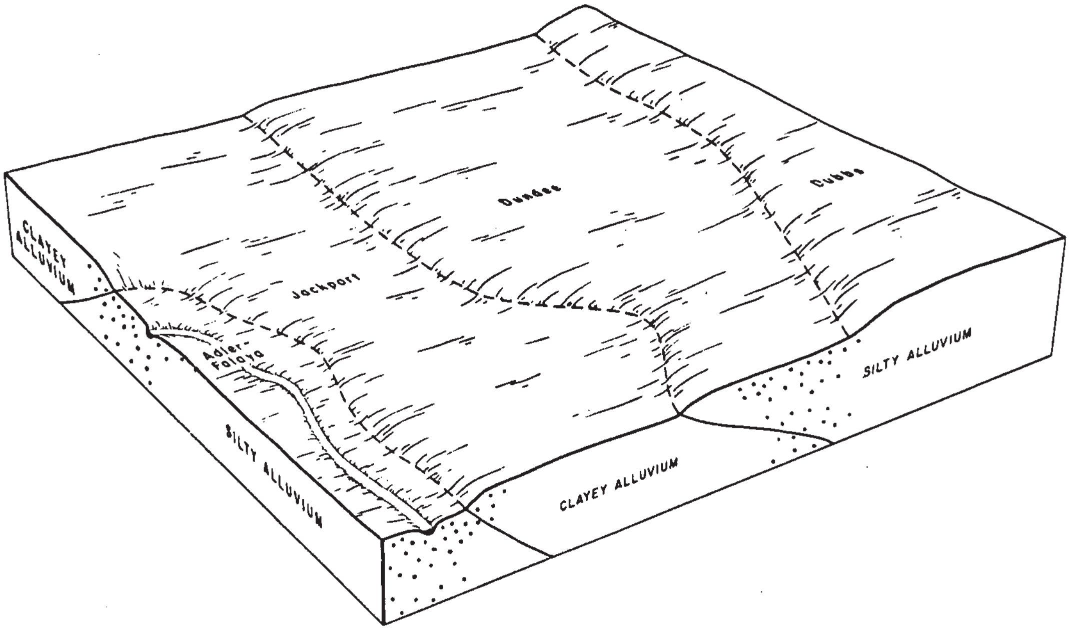

Figure 4.—Typical pattern of soils and underlying material in the Dundee-Dubbs-Jackport association.

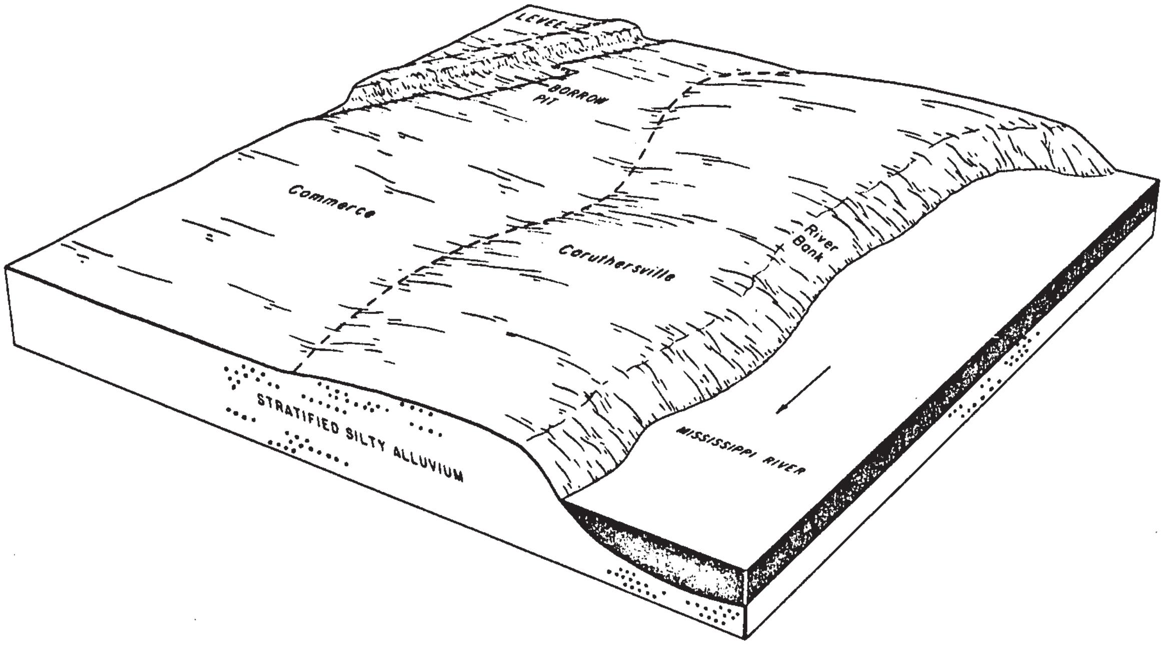

Figure 5.—Typical pattern of soils and underlying material in the Commerce-Caruthersville association.

11. Commerce-Caruthersville association

Nearly level, somewhat poorly drained and moderately well drained silty and loamy soils formed in alluvium

This soil association (fig. 5) consists of nearly level soils on the recent flood plain and low natural levees along the Mississippi River. These soils are adjacent to the Mississippi River and extend almost the entire length of the survey area.

This soil association covers about 1 percent of Cape Girardeau County, 24 percent of Mississippi County, and 5 percent of Scott County. In Cape Girardeau County about 75 percent is Commerce soils, 20 percent is Caruthersville soils, and about 5 percent is soils of minor extent. In Mississippi County about 50 percent is Commerce soils, 35 percent is Caruthersville soils, and 15 percent is soils of minor extent. In Scott County about 50 percent is Commerce soils, 30 percent is Caruthersville soils, and about 20 percent is soils of minor extent.

Commerce soils are nearly level and somewhat poorly drained. They are in slightly depressional areas. Typically, the surface layer is dark grayish brown silty clay loam about 12 inches thick. The subsoil is dark grayish brown, mottled silt loam about 11 inches thick. The substratum extends to a depth of 60 inches or more. It is stratified dark grayish brown, grayish brown, and gray silty clay loam.

Caruthersville soils are nearly level and moderately well drained. They are on low natural levees. Typically, the surface layer and subsurface layer are dark grayish brown and grayish brown very fine sandy loam about 13 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is dark grayish brown very fine sandy loam, the middle part is grayish brown very fine sandy loam, and the lower part is multicolored, stratified very fine sandy loam and silt loam.

The minor soils in this association are in the Bowdre, Reelfoot, Roellen, Sharkey, and Tunica series. The somewhat poorly drained Bowdre and Reelfoot soils are on natural levees. The Roellen, Sharkey, and Tunica soils are poorly drained and are in low lying drainageways.

Most of the soils in this association are used for cultivated crops, and soybeans is the dominant crop. A few areas along the Mississippi River are in timber. The main enterprise is cash crops. These soils have high potential for all cultivated crops commonly grown in the area.

Soybeans, corn, wheat, and grain sorghum grow well on these soils. Available water capacity and natural fertility are high and organic matter content is moderately low. The main concerns of management are flooding, wetness, and maintaining tilth. In areas where there is flooding in spring, planting of crops must be delayed. In protected areas where drainage is provided, these soils are highly productive.

12. Tiptonville-Reelfoot association

Nearly level, moderately well drained and somewhat poorly drained silty soils formed in alluvium

This soil association consists of nearly level soils on high natural levees or terraces. Slopes are mostly nearly level; however, in a few places along sloughs and stream channels the slopes are gently sloping.

This soil association covers about 9 percent of Mississippi County. About 42 percent is Tiptonville soils, 38 percent is Reelfoot soils, and 20 percent is several soils of minor extent.

Tiptonville soils are moderately well drained. They are in the higher areas on old natural levees. Typically, the surface layer is very dark grayish brown silt loam about 6 inches thick. The subsurface layer is very dark grayish brown silty clay loam about 9 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is dark brown silty clay loam, the middle part is dark brown, mottled, and brown silt loam, and the lower part is brown, mottled silt loam.

Reelfoot soils are somewhat poorly drained. They are in the lower areas on old natural levees. Typically, the surface layer and subsurface layer are very dark grayish brown silt loam to a depth of about 16 inches. The subsoil is about 16 inches thick. The upper part is dark grayish brown, mottled silty clay loam, and the lower part is dark grayish brown, mottled silt loam. The substratum to a depth of 60 inches or more is mottled, dark grayish brown, grayish brown, dark yellowish brown, and yellowish brown silt loam.

The minor soils in this association are in the Bowdre, Dubbs, Roellen, Sharkey, and Towosahgy series. Bowdre soils are on ridgetops or terraces and are somewhat poorly drained. Dubbs and Towosahgy soils are well drained. They are on the higher parts of terraces and are intermingled with Tiptonville soils. Roellen soils are in low areas and along stream channels and are poorly drained. Sharkey soils are in broad basins and along old stream channels and are poorly drained.

The soils in this association are used almost entirely for cultivated crops. The main enterprise is cash crops. These soils have high potential for all cultivated crops commonly grown in the area.

Corn, soybeans, grain sorghum, and small grains grow well on these soils. The available water capacity is very high, natural fertility is high, and the organic matter content is moderate. The main concern of management is wetness. This problem, however, is not severe and normally can be overcome by landsmoothing.

nearly level, clayey and silty soils; on levees and flood plains

This association covers about 2 percent of Cape Girardeau County, 33 percent of Mississippi County, and 12 percent of Scott County. These soils are used for cultivated crops. The major concern of management is wetness.

13. Sharkey association

Nearly level, poorly drained clayey and silty soils formed in alluvium

This soil association consists of broad basins and former channels of the Mississippi and Ohio Rivers. The soils in this association are commonly referred to as gumbo soils. These soils are sticky and plastic when wet, and they crack when dry.

This association covers about 2 percent of Cape Girardeau County; 33 percent of Mississippi County; and 12 percent of Scott County. About 75 percent is Sharkey soils, and 25 percent is several soils of minor extent.

Sharkey soils are poorly drained. They are in the lowest part of the survey area. Typically, the surface layer is very dark grayish brown silty clay or silty clay loam about 7 inches thick. The subsoil is about 47 inches thick. The upper part is dark gray, mottled firm clay, and the lower part is gray, mottled, firm clay. The substratum to a depth of 72 inches or more is gray, mottled, firm silty clay.

The minor soils in this association are in the Allemands, Alligator, Mhoon, Roellen, and Tunica series. The Allemands soils are very poorly drained organic soils that are in the lower lying areas. Alligator soils are poorly drained but are on slightly higher old terraces. Mhoon, Roellen, and Tunica soils are poorly drained but are in slightly higher areas and along edges of this association.

Most of the soils in this association are used for soybeans, and a less extensive acreage is used for grain sorghum, rice, wheat, and corn. A few undrained areas are in pasture or remain in timber. These soils have fair to good potential for cultivated crops if properly drained.

Soybeans grow well on these soils if proper drainage is provided. The available water capacity is moderate, natural fertility is high, and the organic matter content is moderate. Wetness is the major problem in managing these soils, and good drainage is essential for growing cultivated crops. Land grading is widely used to eliminate potholes and provide effective, uniform drainage. Drainage ditches extend to all parts of this association.

nearly level to moderately sloping, sandy soils; on levees and terraces

This group of associations covers about 18 percent of Mississippi County and 21 percent of Scott County. These soils are used primarily for cultivated crops, and some are irrigated. Major concerns of management are droughtiness and control of wind erosion.

14. Scotco association

Gently and moderately sloping, excessively drained sandy soils formed in alluvium

This soil association consists of broad natural levees with occasional high ridges and blowouts. The nearly level and gently sloping areas are large in size and have long smooth slopes. The moderately sloping, hummocky areas are smaller in size.

This soil association covers about 19 percent of Scott County. About 75 percent is Scotco soils, and the remaining 25 percent is soils of minor extent.

Scotco soils are gently sloping and moderately sloping and are excessively drained. Typically, the surface layer is very dark grayish brown coarse sand about 9 inches thick. The subsoil is about 23 inches thick. It is dark yellowish brown and yellowish brown coarse sand. The substratum to a depth of 60 inches or more is yellowish brown sand.

The minor soils in this association are in the Diehlstadt and Clana series. The somewhat poorly drained Diehlstadt soils are along narrow drainageways and in depressions. The moderately well drained Clana soils are in the slightly lower areas adjacent to the Scotco soils.

Most of the soils in this association are used for cultivated crops. A few areas are not cultivated and are sparsely covered with weeds, broomsedge, blackjack oak, and post oak. These soils have poor potential for cultivated crops unless they are irrigated.

Soybeans, corn, small grains, and melons are the dominant crops planted on these soils. Yields, however, are very low unless soils are irrigated. Available water capacity, natural fertility, and organic matter content are low.

The main concerns of management are maintaining fertility, controlling wind erosion, and supplying enough water for plants. Residential areas are increasing on this association. Potential is fair for openland and woodland wildlife habitat.

15. Clana-Malden association

Nearly level, moderately well drained and excessively drained sandy soils formed in alluvium

This soil association consists of nearly level soils on old natural levees or terraces. There are some higher ridges that are gently sloping.

This soil association covers about 18 percent of Mississippi County and about 2 percent of Scott County. In Mississippi County about 52 percent is Clana soils, 32 percent is Malden soils, and about 16 percent is several soils of minor extent. In Scott County about 75 percent is Malden soils, 15 percent is Clana soils, and 10 percent is soils of minor extent.

Clana soils are moderately well drained and nearly level. They are in broad areas on old natural levees. Typically, the surface layer is dark brown loamy fine sand about 7 inches thick. The subsoil is about 26 inches thick. The upper part is dark yellowish brown, mottled loamy fine sand, and the lower part is yellowish brown, mottled loamy fine sand. The substratum to a depth of 60 inches or more is dark yellowish brown, mottled loamy fine sand.

Malden soils are excessively drained. They are in the higher areas on old natural levees or terraces. Typically, the surface layer is dark brown loamy fine sand about 9 inches thick. The subsoil, to a depth of 54 inches, is brown loamy fine sand. The substratum extends to a depth of 66 inches or more. It is dark yellowish brown fine sand.

The minor soils in this association are in the Bosket, Broseley, Diehlstadt, Dubbs, and Sikeston series. Small depressions and old stream bottoms are occupied by the somewhat poorly drained Diehlstadt soils and the poorly drained Sikeston soils. Areas of the Bosket, Broseley, and Dubbs soils are intermingled with the Clana and Malden soils.

Most of the soils in this association are used for cultivated crops. A few small areas are in pasture. The main enterprise is the growing of cash crops. These soils have fair to good potential for all cultivated crops grown in the area if they are irrigated.

Soybeans and corn grow well on these soils if they are irrigated. Available water capacity is low, natural fertility is medium, and organic matter content is moderately low to moderate. The main concerns of management are droughtiness and control of wind erosion. Irrigation and winter cover crops are very important in maintaining good yields on these soils.

nearly level, loamy, silty, and sandy soils; on levees and terraces

This group of associations covers about 2 percent of Mississippi County and 18 percent of Scott County. These soils are used primarily for cultivated crops, and in some places they are used for residential development. Major concerns of management are improvement of drainage in some areas and droughtiness in other areas.

16. Bosket-Dubbs-Malden association

Nearly level, well drained and excessively drained loamy, silty, and sandy soils formed in alluvium

This soil association (fig. 6) is on old natural levees and terraces bordering former channels of the Mississippi River and its tributaries.

This association occupies about 9 percent of Scott County. About 25 percent is Bosket soils, 20 percent is Dubbs soils, and 20 percent is Malden soils. About 35 percent is several soils of minor extent.

Bosket soils are loamy throughout and are well drained. They are in broad areas on old natural levees. Typically, the surface layer is dark brown fine sandy loam about 9 inches thick. The subsurface layer is dark yellowish brown fine sandy loam about 12 inches thick. The subsoil is about 24 inches thick. The upper part is yellowish brown fine sandy loam, and the lower part is brown sandy clay loam. The substratum to a depth of 60 inches or more is yellowish brown sand.

Dubbs soils are silty thoughout and are nearly level and well drained. These soils are in broad areas on natural levees. Typically, the surface layer is dark brown silt loam about 9 inches thick. The subsoil is about 31

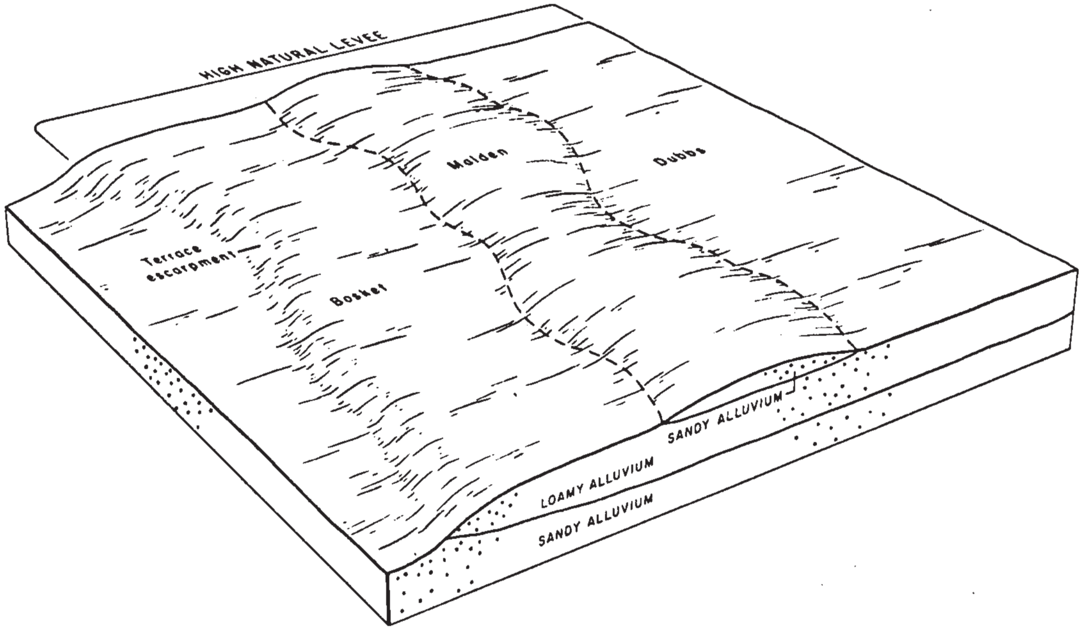

Figure 6.—Typical pattern of soils and underlying material in the Bosket-Dubbs-Malden association.

inches thick. The upper part is dark brown silty clay loam, the middle part is dark brown silty clay loam, and the lower part is dark brown loam. The substratum extends to a depth of 60 inches or more. The upper part is yellowish brown loamy sand, and the lower part is light yellowish brown sand.

Malden soils are sandy throughout and are nearly level to gently undulating. These soils are in the highest areas on the natural levees. Typically, the surface layer is dark brown loamy fine sand about 9 inches thick. The subsoil is dark brown loamy fine sand about 45 inches thick. The substratum extends to a depth of 66 inches or more. It is dark yellowish brown fine sand.

The minor soils in this association are in the Broseley, Clana, Dundee, Scotco, and Tiptonville series. The well drained and somewhat excessively drained Broseley soils are on narrow ridges that are slightly higher in elevation. Clana and Scotco soils are more sandy. Clana soils are on nearly level areas on old levees, and Scotco soils are on the higher ridges. The somewhat poorly drained Dundee soils are in slightly depressional areas. The moderately well drained Tiptonville soils are in areas similar to those of the Dubbs soils.

Most of the soils in this association are intensively cultivated. The main enterprise is the growing of cash crops. These soils are also used for urban development. (fig. 7). They have good potential for most crops commonly grown in the area.

Corn, soybeans, wheat, orchards, and vineyards grow well on these soils. Available water capacity ranges from low to high, natural fertility is medium to high, and organic matter content is moderately low or moderate. The main concerns of management are improvement of surface drainage, maintaining fertility, and supplying enough water on the droughty Malden soil.

17. Farrenburg-Lilbourn-Broseley association

Nearly level, somewhat excessively drained to somewhat poorly drained loamy and sandy soils formed in alluvium

This soil association (fig. 8) is on low natural levees bordering former channels of the Mississippi River and its tributaries. Slopes are mostly nearly level; however, a few of the higher ridges are gently sloping. There are many narrow stream bottoms in this association.

This soil association covers about 9 percent of Scott County. About 25 percent is Farrenburg soils, 25 percent is Lilbourn soils, and 20 percent is Broseley soils. About 30 percent is soils of minor extent.

Farrenburg soils are nearly level and moderately well drained. They are in intermediate areas on low natural levees. Typically, the surface layer is brown fine sandy loam about 8 inches thick. The subsurface layer is yellowish brown, mottled fine sandy loam. The subsoil extends to a depth of 60 inches or more. The upper part is dark yellowish brown, mottled sandy clay loam; the middle part is mottled, dark yellowish brown, yellowish brown, and light brownish gray sandy clay loam; and the lower part is mottled, brown and light brownish gray sandy loam.

Lilbourn soils are nearly level and somewhat poorly drained. They are in low areas and along slightly

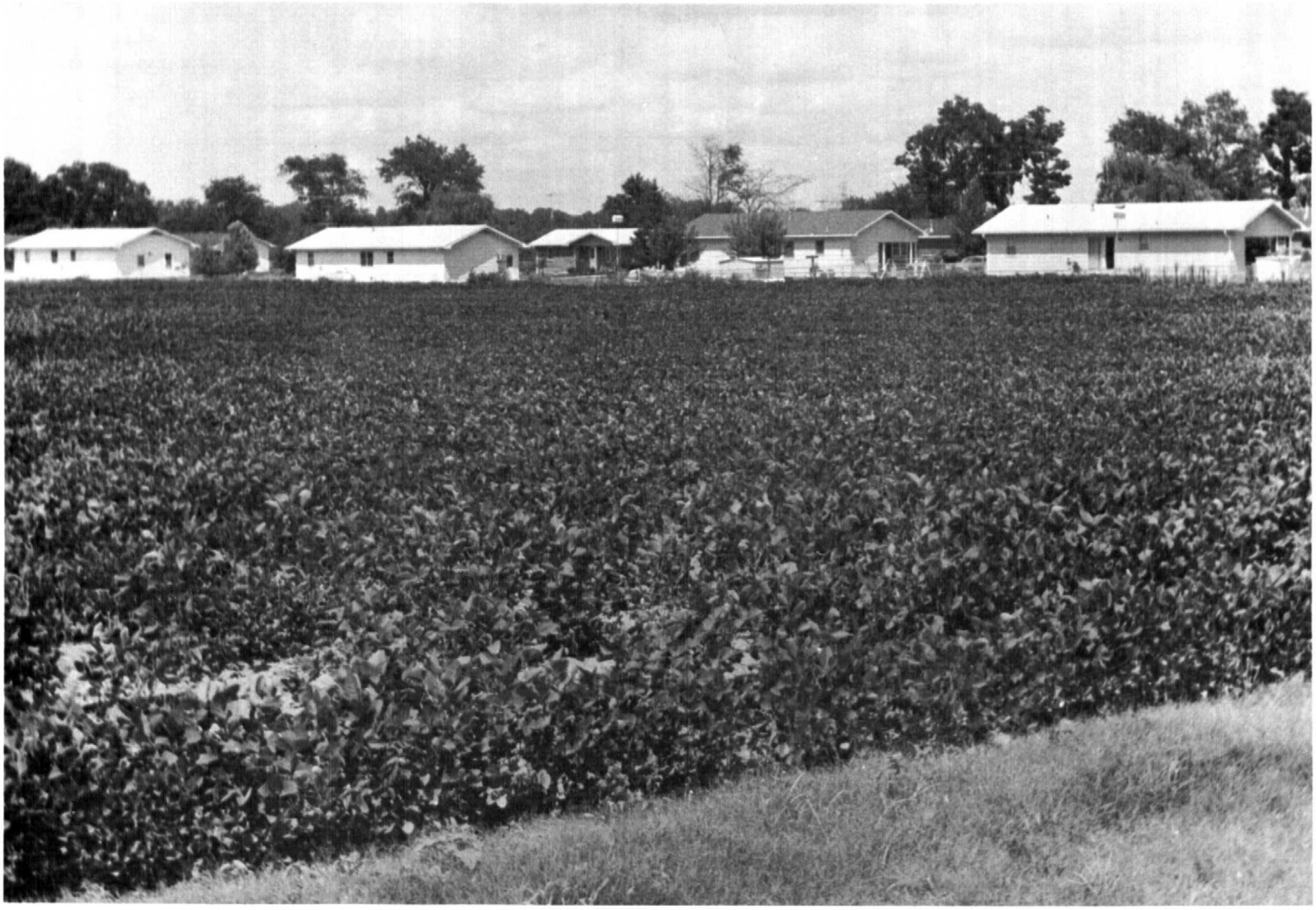

Figure 7.—Soils of the Bosket-Dubbs-Malden association are suited to crops and building sites.

concave drainageways. Typically, the surface layer is dark grayish brown fine sandy loam about 9 inches thick. The subsurface layer is very dark grayish brown, mottled very fine sandy loam. A transitional layer to the substratum is very dark grayish brown and grayish brown, mottled fine sandy loam. The substratum extends to a depth of 60 inches or more. The upper part is dark grayish brown and grayish brown, mottled very fine sandy loam; the middle part is grayish brown, mottled silt loam; and the lower part is grayish brown and brown fine sandy loam.

Broseley soils are nearly level and are well drained and somewhat excessively drained. They are in the highest areas in this association. Typically, the surface layer is brown loamy fine sand about 12 inches thick. The subsurface layer is dark yellowish brown loamy fine sand about 21 inches thick. The subsoil is about 23 inches thick. It is brown and dark yellowish brown fine sandy loam and sandy clay loam. The substratum extends to a depth of 60 inches or more. It is yellowish brown loamy fine sand.

The minor soils in this association are in the Clana, Malden, and Sikeston series. Clana soils are moderately well drained and are in areas similar to those of the Farrenburg soils. Malden soils are excessively drained and are slightly higher than the Broseley soils. Sikeston soils are poorly drained and are in low depressions and along stream channels.

Most of the soils in this association are used for cultivated crops. Some areas are used for urban development. The main enterprise is the growing of cash crops. These soils have good potential for crops commonly grown in the area.

Corn, cotton, soybeans, and wheat are the main crops grown on these soils. Available water capacity is moderate to high, natural fertility is medium, and organic matter content is moderately low. The main concerns of management are improvement of drainage, supplying enough water, and maintaining fertility. Most of this association has been land graded and irrigated to overcome these limitations.

18. Lilbourn-Dundee association

Nearly level, somewhat poorly drained loamy and silty soils formed in alluvium

This soil association (fig. 9) consists of level to depressional natural levees or terraces. Slopes are nearly level and there is little difference in elevation of the soils.

This soil association covers about 12 percent of Mississippi County. About 45 percent is Lilbourn soils, 32 percent is Dundee soils, and 23 percent is soils of minor extent.

Lilbourn soils are nearly level. They are in broad areas on low natural levees. Typically, the surface layer is dark grayish brown fine sandy loam about 9 inches thick. The subsurface layer is very dark grayish brown, mottled very fine sandy loam about 6 inches thick. A transitional layer to the substratum is mottled, very dark grayish brown and grayish brown fine sandy loam. The substratum extends to a depth of 60 inches or more. The upper part is mottled, dark grayish brown and grayish brown very fine sandy loam; the middle part is grayish brown, mottled silt loam; and the lower part is grayish brown and brown fine sandy loam.

Dundee soils are nearly level. They are in slightly depressional areas on old natural levees. Typically, the surface layer is dark grayish brown silt loam about 8 inches thick. The subsoil is about 34 inches thick. The upper part is mottled brown, yellowish brown, and light brownish gray silt loam; the middle part is grayish brown silty clay loam; and the lower part is grayish brown, mottled silty clay loam. The substratum extends to a depth of 60 inches or more. It is brown and grayish brown silt loam.

The minor soils in this association are in the Clana, Jackport, and Sharkey series. Clana soils are in the higher areas on the natural levees and are moderately well drained. Jackport soils are in low areas on the natural levees, are clayey, and are poorly drained. Sharkey soils are in broad basins and old stream channels and are poorly drained.

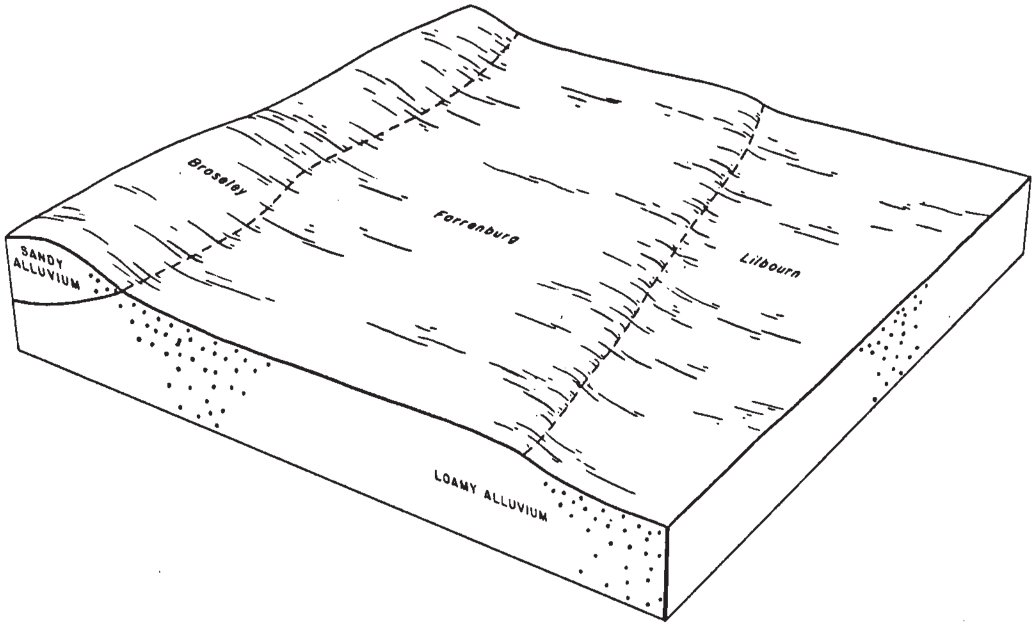

Figure 8.—Typical pattern of soils and underlying material in the Farrenburg-Lilbourn-Broseley association.

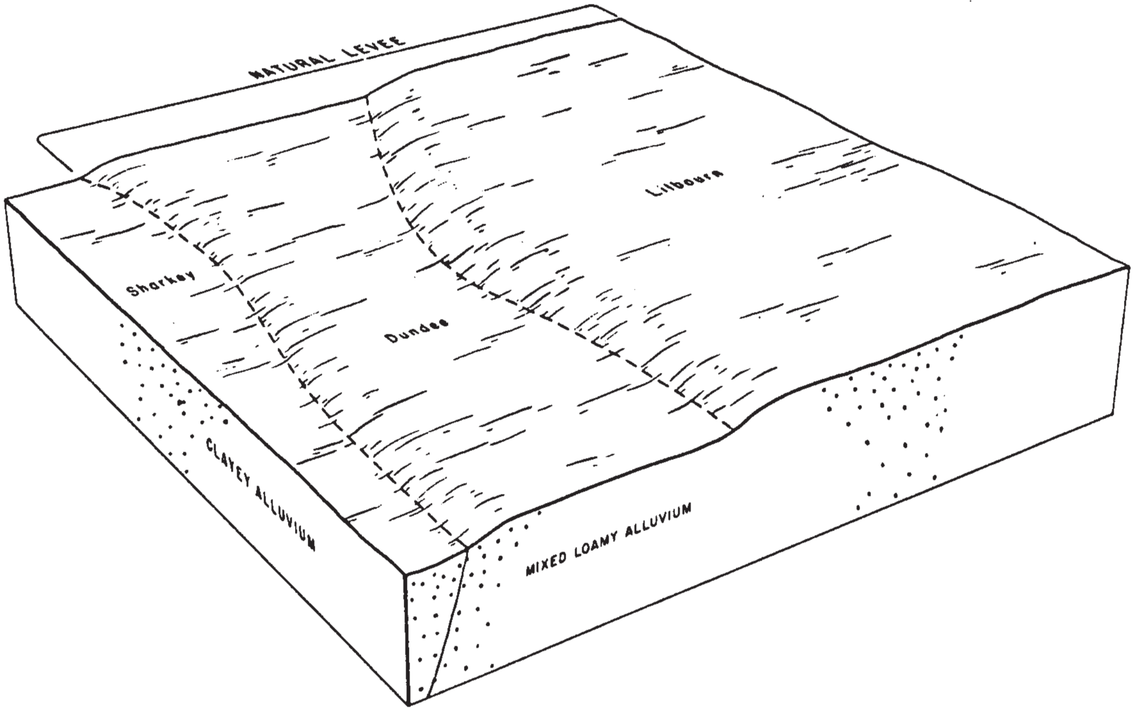
NATURAL LEVEE
Lilbourn
Sharkey
Dundee
CLAYEY ALLUVIUM
MIXED LOAMY ALLUVIUM

Figure 9.—Typical pattern of soils and underlying material in the Lilbourn-Dundee association.

The soils in this association are used almost entirely for cultivated crops. A few small areas remain in timber. The main enterprise is the growing of cash crops. These soils have fair to good potential for all cultivated crops commonly grown in the area.

Corn, soybeans, grain sorghum, and small grains grow well on these soils if adequate drainage is provided. Available water capacity is moderate to high, natural fertility is medium, and organic matter content is moderately low. The main concern of management is improvement of drainage. Lilbourn soils respond well to irrigation.

detailed soil map units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil, a brief description of the soil profile, and a listing of the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Menfro silt loam, 9 to 14 percent slopes is one of the several phases in the Menfro series.

Some map units are made up of two or more major soils. These map units are called soil complexes.

A *soil complex* consists of two or more soils that occur as areas so intricately mixed or so small that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Menfro-Clarksville complex, 20 to 60 percent slopes, is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. These dissimiliar soils are described in each map unit. Also, some of the more unusual or strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes some *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarry, is an example. Some miscellaneous areas are large enough to be delineated on the soil maps. Some that are too small to be delineated are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

soil descriptions

11C—Peridge silt loam, 5 to 9 percent slopes. This moderately sloping, well drained soil is on ridgetops and side slopes on uplands. Individual areas are irregular in shape and range from 10 to 30 acres.

Typically, the surface layer is dark grayish brown silt loam about 2 inches thick. The subsurface layer is yellowish brown silt loam about 5 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is strong brown silty clay loam, the middle part is yellowish red silty clay loam, and the lower part is red cherty silty clay loam and dark red silty clay.

Included with this soil in mapping are areas where slope is 9 to 14 percent. Also included are areas of the well drained Menfro soil. These inclusions make up about 10 percent of this map unit.

This Peridge soil has moderate permeability. Runoff is medium, and the available water capacity is high. The organic matter content and natural fertility are low. Reaction ranges from medium acid to very strongly acid throughout the soil. The surface layer is friable.

Most areas of this soil are in pasture, cultivated crops, or woodland. It has fair potential for cultivated crops. The potential for pasture and woodland is good. The soil has fair potential for sanitary facilities and as building sites.

This soil is suitable for cultivated crops. Terraces that have grass waterways, ponds, and structures are needed to control erosion. Stripcropping, contour farming, crop rotation, and conservation tillage also help prevent damage from excessive soil loss. In its natural state this soil is acid and low in fertility. The addition of commercial fertilizer and lime improves fertility and reduces acidity, making the soil more suitable for crops. Proper management of crop residue and green manure crops helps to control erosion, improves organic matter content, maintains tilth, and increases water intake.

This soil is suitable for pasture and hay. Terraces, ponds, and other structures can be used to control erosion. The addition of commercial fertilizer and lime improves fertility and reduces acidity. Pasture rotation, proper stocking, and deferment of use during prolonged wet periods help to maintain pasture productivity and prevent excessive soil loss.

This soil is suitable for woodland production. The trees are dominantly the upland oaks. Most stands need selective cutting to remove diseased, damaged, or undesirable species. This soil is suitable for shortleaf pine. It is an important species used largely for lumber, paper pulp, and treated posts. Shortleaf pine seeds and seedlings grow well if competing vegetation is controlled. This can be accomplished by site preparation, spraying, and cutting.

This soil is suitable for sanitary facilities and building sites. Although permeability is moderate, the movement of effluent is slow enough to cause a moderate limitation for septic tank absorption fields. Increasing the length of the filter field will help overcome this limitation. Proper reinforcement of foundations for dwellings and small commercial buildings helps to overcome the shrinking and swelling. Adding extra base material helps to strengthen roads and streets.

This soil is in capability subclass IIIe; woodland suitability subclass 3o.

11D—Peridge silt loam, 9 to 14 percent slopes. This strongly sloping, well drained soil is on narrow, convex ridgetops and side slopes. Individual areas are irregular in shape and range from 10 to 150 acres.

Typically, the surface layer is dark brown silt loam about 2 inches thick. The subsurface layer is dark yellowish brown silt loam about 3 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is strong brown silty clay loam, the middle part is brown silty clay loam, and the lower part is reddish brown cherty silty clay loam. In some areas the surface layer has been mixed into the subsoil.

Included with this soil in mapping are areas of the well drained Menfro soil on ridgetops and upper side slopes, and well drained Poynor soils on the lower side slopes. Also included are areas where slope is less than 9 percent on the wider ridgetops. These inclusions make up about 10 percent of this unit.

This Peridge soil has moderate permeability. Runoff is medium, and the available water capacity is high. The natural fertility and organic matter content are low. Reaction ranges from medium acid to very strongly acid throughout the soil. The surface layer is friable and easily tilled.

Most areas of this soil are in pasture or woodland. It has good potential for hay, pasture, and trees. It has fair potential for sanitary facilities and as building sites.

This soil is suited to grasses and legumes for hay and pasture. Areas that are large enough and smooth enough are suitable for occasional row crops and small grains. If this soil is used for cultivated crops, there is a severe hazard of erosion. Conservation tillage, winter cover crops, and grassed waterways help to control erosion. Some areas are favorable for terraces and contour farming. The addition of crop residue and other sources of organic matter help to maintain fertility and tilth and increase water infiltration.

This soil is suitable for pasture and hay crops. Terraces, ponds, and other structures can be used to control erosion. In its natural state, this soil is low in fertility and is strongly acid. The addition of commercial fertilizer and lime improves fertility and reduces acidity. Pasture rotation, proper stocking, and deferment of use during prolonged wet periods help to maintain pasture productivity and prevent excessive soil loss.

This soil is suited to woodland production. The trees are dominantly the upland oaks. Most stands need selective cutting to remove diseased, damaged, or undesirable species. This soil is suitable for the establishment of shortleaf pine. It is an important species used largely for lumber, paper pulp, and treated posts Shortleaf pine seeds and seedlings grow well if competing vegetation is controlled. This can be accomplished by site preparation, spraying, and cutting.

This soil is suitable for sanitary faclities and building sites. Slope and moderate permeability are moderate limitations for septic tank absorption fields. Increasing the length of the filter field and grading the area to modify the slope helps to overcome these limitations. Proper reinforcement of foundations for dwellings and small commercial buildings and the use of extra base material for roads and streets can help to overcome low strength.

This soil is in capability subclass IVe; woodland suitability subclass 3o.

11E—Peridge silt loam, 14 to 20 percent slopes. This moderately steep, well drained soil is on convex side slopes on uplands. Individual areas are irregular in shape and range from 10 to 100 acres.

Typically, the surface layer is about 10 inches thick. The upper 3 inches is dark grayish brown silt loam, and the lower 7 inches is dark yellowish brown silt loam. The subsoil extends to a depth of 60 inches or more. The upper part is strong brown silty clay loam, and the lower part is yellowish red silty clay loam.

Included with this soil in mapping are small areas of Poynor soils on the lower side slopes and on short, steep toe slopes. These inclusions make up about 5 percent of this unit.

This Peridge soil has moderate permeability. Runoff is medium, and the available water capacity is high. The organic matter content and natural fertility are low. Reaction ranges from medium acid to very strongly acid throughout the soil.

Nearly all areas of this soil are in pasture or woodland. It has good potential for grasses, legumes, and trees. It has poor potential for sanitary facilities and as building sites.

This soil is generally unsuitable for continuous use as cropland and should be tilled only when needed for reseeding. Seed should be planted early enough to establish good ground cover before the growing season ends. Nurse crops can be used to provide cover in late fall and winter until the grasses and legumes are established.

Because of the steep slope, grasses and legumes should be maintained to control erosion in pastures. Overgrazing should be avoided. Restricted use during wet periods as well as pasture rotation, proper stocking, and maintaining adequate fertility help to keep the pasture and soil in good condition.

This soil is suited to trees, and many areas have existing stands of native hardwoods. There is a moderate hazard of erosion and the use of machinery is limited because slopes are steep. This limitation can be overcome to some extent by proper management of ground cover to prevent damage from erosion and the timely use of equipment when the surface layer is dry and firm. Existing stands of timber need selective cutting of undesirable trees and protection from fire and grazing for best production.

This soil is suitable for sanitary facilities and building sites. If septic tank absorption fields are installed, the area should be graded to modify the slope and the length of the lateral field should be increased to help overcome the moderate permeability. Where dwellings or small commercial buildings are constructed the area should be graded to modify the slope. Roads can be strengthened by adding extra base material.

This soil is in capability subclass VIe; woodland suitability subclass 3r.

12A—Elsah silt loam, 0 to 3 percent slopes. This nearly level and gently sloping, somewhat excessively drained soil is on narrow stream bottoms. This soil is subject to frequent flooding. Individual areas occur as narrow bands that are parallel to the stream channel and range from 5 to more than 80 acres.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is dark yellowish brown silt loam; the middle part is dark yellowish brown, stratified very cherty loam; and the lower part is dark yellowish brown, stratified very cherty silt loam.

Included with this soil in mapping are small areas of well drained Haymond soils bordering the uplands. These inclusions make up about 5 percent of this unit.

This Elsah soil has moderately rapid permeability. Surface runoff is slow, and the available water capacity is moderate. Natural fertility is medium, and the organic matter content is low. Reaction is neutral to medium throughout the soil. The surface layer is friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are cleared and used for cultivated crops or pasture. Other areas of this soil that are too small or narrow to be practical to cultivate remain in timber. This soil has good potential for cultivated crops, hay, pasture, and trees. It has poor potential for sanitary facilities and as building sites.

This soil is suited to corn, soybeans, small grains, and grasses and legumes for hay and pasture. It is subject to frequent flooding, normally late in winter or early in spring. Planting dates are scheduled to avoid this danger in most years. Tillage may be a problem in some areas where chert fragments are abundant on the surface. In areas that have large amounts of chert fragments throughout the profile, the soil tends to be droughty. The addition of crop residue and other sources of organic matter increases the available water holding capacity and helps to maintain good tilth. Proper stocking, pasture rotation, and restricted use during wet periods help to keep the pasture in good condition.

This soil is suited to woodland production, and a few areas remain in this use. Tree seeds and seedlings survive and grow well if plant competition is controlled.

This soil is generally unsuitable for sanitary facilities and building sites because of the hazard of flooding. Dwellings and other buildings should be built above known flood levels.

This soil is in capability subclass IIs; woodland suitability subclass 4s.

13—Haymond silt loam, frequently flooded. This nearly level, well drained soil is bottom land formed in silty alluvium washed from loess-covered uplands. Individual areas are irregular in shape and range from 5 to more than 500 acres.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is dark brown, massive silt loam; the middle part is dark brown and brown, massive silt loam; and the lower part is brown, mottled silt loam.

Included with this soil in mapping are small areas of somewhat excessively drained Elsah soils that generally are in narrow bands along stream channels or on cherty alluvial fans and along narrow drainageways bordering steep land. Also included are small areas of moderately well drained Wilbur soils in the lower areas. These inclusions make up about 5 percent of this map unit.

This Haymond soil has moderate permeability. Surface runoff is very slow, and the available water capacity is very high. Natural fertility is high, and the organic matter content is moderately low. Reaction ranges from medium acid to neutral throughout the soil. The surface layer is friable and easily tilled throughout a wide range in moisture content.

Nearly all areas of this soil are farmed. It has good potential for cultivated crops, hay, pasture, and trees. It has poor potential for most sanitary facilities and as building sites.

This soil is highly productive and is suitable for corn, soybeans, wheat, and grasses and legumes for hay.

There are no major agricultural problems associated with this soil. Flooding causes minor problems late in winter and early in spring for brief periods.

This soil is suited to trees, and a few small areas remain in native hardwoods. It is suited to valuable trees such as black walnut and pecan.

This soil is generally unsuitable for sanitary facilities and building sites because of the hazard of flooding. Dwellings and other buildings should be built above known flood levels.

This soil is in capability subclass IIw; woodland suitability subclass 1o.

14E—Holstein loam, 14 to 20 percent slopes. This moderately steep, well drained soil is on side slopes in the uplands. Individual areas are irregular in shape and range from 5 to more than 200 acres.

Typically, the surface layer is dark grayish brown loam about 2 inches thick. The subsurface layer is brown and yellowish brown loam to a depth of about 12 inches. The subsoil extends to a depth of 60 inches or more. The upper part is yellowish red clay loam about 12 inches thick, the middle part is yellowish red and strong brown sandy clay loam, and the lower part is strong brown, massive loam. In some places the surface layer is sandy loam.

Included with this soil in mapping are areas where slopes are 9 to 14 percent. Also included are areas of the well drained Menfro soil on the upper side slopes, and outcroppings of sandstone bedrock near drainageways and on the lower side slopes. These inclusions make up about 10 percent of this unit.

This Holstein soil has moderate permeability. Surface runoff is rapid, and the hazard of erosion is severe on bare soil. The available water capacity is high, and the natural fertility and organic matter content are low. Reaction ranges from medium acid to neutral in the surface layer and from very strongly acid to medium acid in the subsoil.

Most areas of this soil are in timber. A few areas are cleared and in pasture. This soil has good potential for trees and for woodland wildlife habitat. The potential for grasses and legumes for hay and pasture is fair. The potential for most sanitary facilities and as building sites is fair.

This soil is suited to trees, and most areas have existing stands of native hardwoods. Erosion and the restricted use of equipment are moderate limitations caused by the steepness of slopes. These limitations can be overcome to some extent by proper management of ground cover to prevent damage from erosion and by timely use of equipment when the topsoil is dry and firm. Existing stands need selective cutting and thinning to remove undesirable trees. They also need protection from fire and grazing. These practices also improve the habitat for woodland wildlife species, expecially white-tailed deer, wild turkeys, and squirrels.

This soil is generally unsuitable for continuous use as cropland and should be tilled only when needed for seeding pasture. The timely use of conservation tillage is necessary to control erosion. Seed should be planted early enough to establish good ground cover before the end of the growing season. Restricted use during wet periods as well as proper stocking, pasture rotation, and deferred grazing keep the pasture and soil in good condition.

This soil is suitable for sanitary facilities and building sites. If septic tank absorption fields are installed, the area should be graded to modify the slope and the length of the lateral field should be increased to help overcome the moderate permeability. Where dwellings or small commercial buildings are constructed, the area should be graded to modify the slope. Roads can be strengthened by adding extra base material.

This soil is in capability subclass IVe; woodland suitability subclass 3r.

15B—Iva silt loam, 2 to 6 percent slopes. This gently sloping, somewhat poorly drained soil is on slightly convex ridgetops and toe slopes. Individual areas are irregular in shape and range from 5 to more than 80 acres.

Typically, the surface layer is dark grayish brown silt loam about 6 inches thick. The subsurface layer is light brownish gray silt loam about 9 inches thick. The subsoil is about 45 inches thick. The upper part is light brownish gray and pale brown silt loam, the middle part is grayish brown silty clay loam, and the lower part is light brownish gray silty clay loam and silt loam mottled with strong brown.

Included with this soil in mapping are areas of well drained Menfro soils on the higher parts of the landscape. These inclusions make up about 5 percent of this unit.

This Iva soil has slow permeability. Surface runoff is medium, and the available water capacity is high. Natural fertility is low, and the organic matter content is moderately low. Reaction ranges from very strongly acid to slightly acid in the subsoil and varies widely in the surface layer because of liming practices. The surface layer is friable and easily tilled.

Most areas of this soil are farmed. It has good potential for cultivated crops, hay, pasture, and trees. It has fair potential for most sanitary facilities and as building sites.

This soil is suited to corn, soybeans, small grains, and grasses and legumes for hay and pasture. If it is used for cultivated crops, there is a hazard of erosion. Conservation tillage, winter cover crops, and grassed waterways help prevent excessive soil loss. Returning crop residue to the soil or the regular addition of other organic matter improves fertility, reduces crusting, and increases water intake.

The use of this soil for pasture or hay is effective in controlling erosion. Overgrazing or grazing when the soil is too wet causes surface compaction, excessive runoff, and poor tilth. Restricted use during wet periods as well

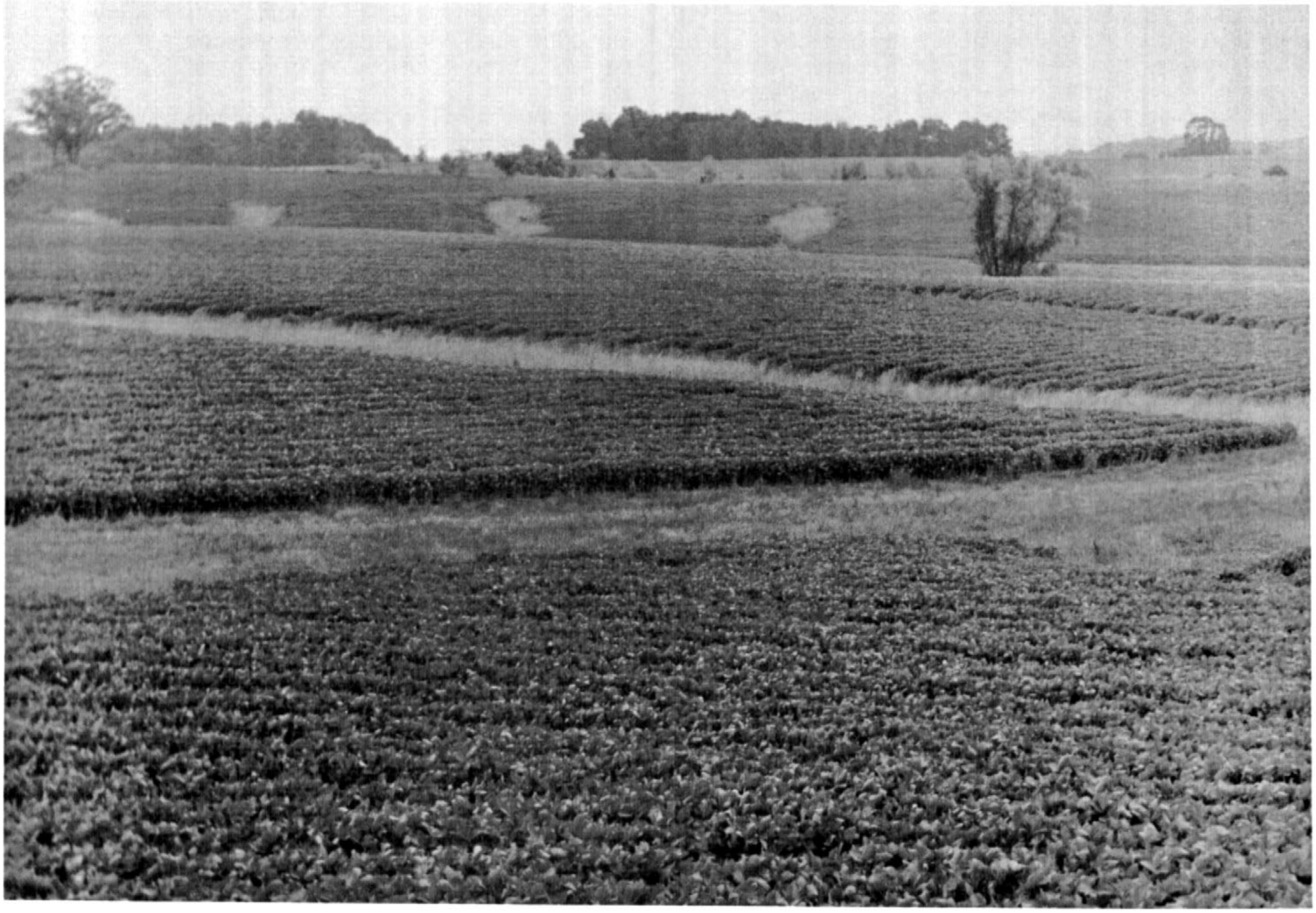

Figure 10.—Grassed waterways on Menfro silt loam, 2 to 5 percent slopes, help to prevent excessive soil loss.

as proper stocking, pasture rotation, and timely deferment of grazing help to keep the pasture and soil in good condition.

This soil is suited to trees. Tree seeds, cuttings, and seedlings survive and grow well if competing vegetation is controlled or removed. This can be accomplished by site preparation, prescribed burning, or by spraying, cutting, or girdling. Planting or harvesting trees is moderately limited by wetness. This limitation can be overcome by the timely use of equipment when the soil is dry.

This soil is suitable for sanitary facilities and building sites if proper design and installation procedures are used. Septic tanks work poorly because of wetness and slow permeability. Sewage lagoons function better; however, the lagoon bottom must be sealed with slowly permeable material to prevent seepage. Lowering the water table and installing foundation drains will help to overcome the limitation of severe wetness for dwellings and small commercial buildings. Roads and streets can be strengthened by adding extra base material.

This soil is in capability subclass IIe; woodland suitability subclass 2o.

16B—Menfro silt loam, 2 to 5 percent slopes. This gently sloping, well drained soil is on wide, convex ridgetops in the uplands. Individual areas are irregular in shape and range from 5 to more than 100 acres.

Typically, the surface layer is brown silt loam about 7 inches thick. The subsoil is about 41 inches thick. The upper part is brown, friable silt loam, and the lower part is brown, firm silty clay loam. The substratum to a depth of 62 inches or more is yellowish brown silt loam. In some areas this soil has gray mottles in the lower part of the subsoil.

Included with this soil in mapping are a few areas along the edges of ridges where slope is more than 5 percent. These inclusions make up about 5 percent of the unit.

This Menfro soil has moderate permeability. Surface runoff is medium, and the available water capacity is high. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from strongly acid to neutral in the subsoil, and it varies widely in the surface layer as a result of liming practices. The surface layer is friable and easily tilled throughout a fairly wide range in moisture content.

Most areas of this soil are farmed. It has good potential for cultivated crops, hay, pasture, and trees. Also, it has good potential for most sanitary facilities and as building sites.

This soil is suited to corn, soybeans, small grains, and grasses and legumes for hay and pasture. If it is used for cultivated crops, there is a hazard of erosion. Conservation tillage, winter cover crops, and grassed waterways help to prevent excessive soil loss (fig. 10). Returning crop residue to the soil or the regular addition of other organic material improves fertility, reduces crusting, and increases water intake.

The use of this soil for pasture or hay is effective in controlling erosion. Overgrazing or grazing when the soil is too wet causes surface compaction, excessive runoff, and poor tilth. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture and soil in good condition.

This soil is suited to trees, and a few areas remain in timber. Tree seeds, cuttings, and seedlings survive and grow well if competing vegetation is controlled or removed. This can be accomplished by site preparation or prescribed burning or by spraying, cutting, or girdling.

This soil is suitable for sanitary facilities and building sites if proper design and installation procedures are used. Seepage from sewage lagoons can be prevented by special treatment or by adding slowly permeable material to seal the bottom of the lagoon. This soil does not have sufficient strength to support roads and streets, but this can be corrected by adding extra base material. Building foundations should be reinforced to help overcome shrinking and swelling.

This soil is in capability subclass IIe; woodland suitability subclass 3o.

16C—Menfro silt loam, 5 to 9 percent slopes. This moderately sloping, well drained soil is on convex ridgetops and side slopes. Individual areas are generally long and irregular in shape and range from 5 to more than 200 acres.

Typically, the surface layer is brown silt loam about 8 inches thick. The subsoil extends to a depth of 76 inches or more. It is brown silt loam and silty clay loam. In some areas this soil has gray mottles in the lower part of the subsoil. In some places this soil is severely eroded. In most of these areas the surface layer is silt loam; however, there is an increase in clay content that makes it cloddy and more difficult to till.

Included with this soil in mapping are a few areas along the sides of ridgetops where slope is more than 9 percent. These inclusions make up about 5 percent of this unit.

This Menfro soil has moderate permeability. Surface runoff is medium, and the available water capacity is high. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from strongly acid to neutral in the subsoil, and it varies widely in the surface layer as a result of liming practices. The surface layer is friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are farmed. It has good potential for cultivated crops, hay, pasture, and trees. It also has good potential for most sanitary facilities and as building sites and for openland and woodland wildlife habitat.

This soil is suited to corn, soybeans, small grains, and grasses and legumes for hay and pasture. If this soil is used for cultivated crops, there is a hazard of erosion. Conservation tillage, winter cover crops, and grassed waterways help prevent damage from erosion. In some areas slopes are long and smooth enough for terraces and farming on the contour. Proper management of crop residue and green manure crops helps keep the pasture and soil in good condition.

The use of this soil for pasture or hay is very effective in controlling erosion. Overgrazing should be avoided. Grazing when the soil is too wet causes surface compaction, poor tilth, and excessive runoff. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture and soil in good condition.

This soil is suited to trees, and some areas have stands of native hardwoods. These stands need selective cutting to remove diseased, damaged, and undesirable species. New stands need protection from fire and grazing. These practices also improve the habitat for woodland wildlife.

This soil is suitable for sanitary facilities and building sites if proper design and installation procedures are used. Areas used for septic tank absorption fields can be graded to modify the slope. Seepage from sewage lagoons can be prevented by special treatment or by adding slowly permeable material to seal the bottom of the lagoon. This soil does not have sufficient strength to support roads and streets, but this can be corrected by adding extra base material.

This soil is in capability subclass IIIe; woodland suitability subclass 3o.

16D—Menfro silt loam, 9 to 14 percent slopes. This strongly sloping, well drained soil is on narrow ridgetops and side slopes. Many small drains cut through the side slopes and run into adjacent larger drains. Individual areas are long and irregular in shape and range from 5 to more than 200 acres.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil, about 49 inches thick, is strong brown silt loam and silty clay loam. The substratum to a depth of 60 inches or more is brown silt loam. In some areas this soil has gray mottles in the lower part of the subsoil. In some places this soil is severely eroded. In most of these eroded areas the surface layer is silt loam, however there is an increase in clay content that makes it cloddy and more difficult to till.

Included with this soil in mapping are a few cherty areas around high peaks on narrow ridgetops. Also included are a few areas of limestone outcrop on foot slopes or along the edges of drainageways. These inclusions make up about 5 percent of this unit.

This Menfro soil has moderate permeability. Runoff is rapid, and the available water capacity is high. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from strongly acid to neutral in the subsoil, and it varies widely in the surface layer as a result of local liming practices. The surface layer is friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are in woodland or pasture. This soil has good potential for trees, hay, and pasture. It has fair to poor potential for cultivated crops. It has fair potential for most sanitary facilities and as building sites.

This soil is suited to occasional cultivation if the size, shape, and accessibility of the area make it practical. If the soil is used for cultivated crops, there is a severe hazard of erosion. Conservation tillage, winter cover crops, and grassed waterways help to control erosion. Proper management of crop residue helps to control erosion, maintains tilth, improves and maintains organic matter content, and increases water intake.

This soil is suitable for hay and pasture. This use is very effective in controlling erosion. Overgrazing should be avoided. Grazing when the soil is too wet causes surface compaction, poor tilth, and excessive runoff. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing keep the pasture and soil in good condition.

This soil is suited to trees, and many areas have stands of native hardwoods. These stands need selective cutting to remove diseased, damaged, and undesirable species; stand improvement; and protection from fire and grazing. These practices also improve the habitat for woodland wildlife, especially deer and wild turkey.

This soil is suitable for sanitary facilities and building sites if proper design and installation procedures are used. Areas used for septic tank absorption fields, sewage lagoons, and buildings and dwellings can be graded to modify the slope. Seepage from sewage lagoons can be prevented by special treatment or by adding slowly permeable material to seal the bottom. Building foundations need reinforcement to help overcome shrinking and swelling. Roads can be strengthened by adding extra base material.

This soil is in capability subclass IIIe; woodland suitability subclass 3o.

16E—Menfro silt loam, 14 to 30 percent slopes. This moderately steep and steep, well drained soil is on convex, uneven side slopes. Individual areas are irregular in shape and range from 5 to more than 300 acres.

Typically, the surface layer is about 6 inches thick. The upper part is very dark grayish brown silt loam about 2 inches thick, and the lower part is yellowish brown silt loam. The subsoil, about 34 inches thick, is brown silty clay loam. The substratum to a depth of 60 inches or more is yellowish brown silt loam. In some areas this soil has gray mottles in the lower part of the subsoil. In some places this soil is severely eroded. In most of these areas the surface layer is silt loam; however, there is an increase in clay content that makes it cloddy and more difficult to till.

Included with this soil in mapping are small areas of somewhat excessively drained Clarksville soils. Typically these areas are at the heads of small drainageways. Also included are limestone outcrops on toe slopes and near drainageways. These inclusions make up about 5 percent of this unit.

This Menfro soil has moderate permeability. Surface runoff is rapid, and available water capacity is high. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from strongly acid to neutral in the subsoil, and it varies widely in the surface layer as a result of local liming practices. The surface layer is friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are in pasture or timber. It has good potential for trees, hay, and pasture. The potential for cultivated crops is poor. This soil has fair potential for most sanitary facilities and as building sites.

This soil is generally unsuitable for continuous use as cropland and should be tilled only when necessary for seeding. When seeding grasses or legumes, conservation tillage helps prevent drainage from severe erosion. Seed should be planted early enough to establish good ground cover before the end of the growing season. Nurse crops can be used to provide cover in late fall and winter until grasses and legumes are established.

If this soil is used for pasture, overgrazing should be avoided. Grazing when the soil is too wet causes surface compaction, poor tilth, and excess runoff. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture and soil in good condition.

This soil is suited to trees, and many areas have stands of native hardwoods. Tree seeds, cuttings, and seedlings survive and grow well where competing vegetation is controlled by site preparation, spraying, cutting, or girdling. The slope is steep enough that the hazard of erosion and equipment limitations need to be considered when planting and harvesting. New stands need protection from fire and grazing. These practices also improve the habitat for woodland wildlife, especially white-tailed deer and wild turkey.

This soil is suited to building sites and sanitary facilities if proper design and installation procedures are used. Areas used for dwellngs, small buildings, and septic tank absorption fields can be graded to modify the slope. Building foundations need reinforcement to help overcome shrinking and swelling. Roads can be strengthened by adding extra base material.

This soil is in capability subclass VIe; woodland suitability subclass 3r.

17F—Menfro-Clarksville complex, 20 to 60 percent slopes. This complex consists of steep and very steep, well drained and somewhat excessively drained soils on upland side slopes. It is 50 to 55 percent Menfro soils and 45 to 50 percent Clarksville soils. The slopes are long and steep to very steep, and the drainageways are deeply cut into the landscape. Individul areas range from 10 to several hundred acres. The Menfro soils are on narrow ridgetops and extend midway or more on the convex part of the side slopes. They also occur occasionally on toe slopes. The Clarksville soils are on the concave part of side slopes and extend into the drainageways. These soils are so intermingled that they could not be shown separately at the scale selected for mapping.

Typically, the Menfro soil has a surface layer that is very dark grayish brown silt loam about 3 inches thick. The subsurface layer is brown silt loam about 5 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is brown silt loam, the middle part is dark brown silty clay loam, and the lower part is brown silt loam.

Typically, the Clarksville soil has a surface layer that is very dark grayish brown cherty silt loam about 3 inches thick. The subsurface layer is yellowish brown cherty silt loam about 5 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is strong brown very cherty silt loam, the middle part is strong brown very cherty silty clay loam, and the lower part is yellowish red very cherty silty clay. In some places the surface layer is silt loam.

Included with these soils in mapping are small areas of Elsah soils on narrow stream bottoms and areas of limestone outcrop bordering the Mississippi River flood plain and on toe slopes in the uplands. Also included are areas that are severely eroded. In these areas the original surface layer is only a few inches thick or absent entirely. These inclusions make up about 5 percent of this unit.

Permeability is moderate in the Menfro soil and moderately rapid in the Clarksville soil. Surface runoff is very rapid in both soils. The available water capacity is high in the Menfro soil and low in the Clarksville soil. Natural fertility is medium in the Menfro soil and low in the Clarksville soil. Organic matter content is moderately low in the Menfro soil and low in the Clarksville soil. Reaction in both soils ranges from very strongly acid to medium acid in the subsoil and from very strongly acid to slightly acid in the surface layer.

Nearly all areas of these soils are forested. A few areas have been cleared and are used as pasture. These soils have fair potential for woodland and woodland wildlife habitat. They have poor potential for crops and for most sanitary facilities and as building sites.

These soils are suited to timber production. The slope is steep enough that moderate to severe hazards of erosion and equipment limitations need to be considered when planting and harvesting. Existing timber stands need thinning and selective cutting to remove undesirable trees. New stands need protection from fire and grazing. These practices also improve the habitat for woodland wildlife, especially, white-tailed deer and wild turkey.

Areas of these soils that are smooth enough can be used as pasture if erosion is carefully controlled. Where seeding grasses and legumes for pasture, conservation tillage is necessary in order to prevent damage from severe erosion. Overgrazing should be avoided. Most existing pastures need weed and brush control.

These soils are generally unsuited to sanitary facilities and building sites because of steepness of slope and the high chert content of the Clarksville soil.

This complex is in capability subclass VIIs; woodland suitability subclass for Menfro soil is 3r and for Clarksville soil is 4f.

18D—Menfro-Bucklick silt loams, 9 to 14 percent slopes. This complex consists of strongly sloping, well drained soils on convex, upland ridgetops and side slopes. It is about 55 to 70 percent Menfro soils and about 25 to 40 percent Bucklick soils. Individual areas range from 10 to 200 acres. The Menfro soils are on convex ridgetops and extend midway or farther down the side slope. The Bucklick soils are near the bottom of the slide slopes and extend into shallow drainageways. Most areas are cut up by shallow drainageways exposing limestone outcrop. These soils are so intermingled that they could not be shown separately at the scale selected for mapping.

Typically, the Menfro soil has a surface layer of dark yellowish brown silt loam about 7 inches thick. The subsoil is about 31 inches thick. The upper part is yellowish brown silt loam, and the lower part is brown and yellowish brown silty clay loam. The substratum to a depth of 60 inches or more is yellowish brown silt loam.

Typically, the Bucklick soil has a surface layer of dark yellowish brown silt loam about 6 inches thick. The subsoil is about 45 inches thick. The upper part is yellowish red silty clay loam, the middle part is yellowish red silty clay, and the lower part is red silty clay. Below this is hard limestone. In some areas the subsoil is more than 60 inches deep.

Included with these soils in mapping are areas where slope is more than 14 percent. Some areas are severely eroded. Also included are areas of limestone rock outcrop. These areas are commonly on lower side slopes and toe slopes and extend into drainageways. These inclusions make up about 10 percent of this unit.

Permeability of the Menfro and Bucklick soils is moderate, and surface runoff is rapid. The available water capacity is high in the Menfro soil and moderate in the Bucklick soil. Shrinking and swelling are moderate in both soils. Natural fertility is medium in both soils, but the organic matter content is moderately low in the Menfro soil and low in the Bucklick soil. Reaction in both soils ranges from strongly acid to neutral in the subsoil, and it varies widely in the surface layer as a result of local liming practices. The surface layer in both soils is friable and fairly easy to till, but in areas where the surface layer is mixed with subsoil material the soil has a tendency to crust after heavy rains.

Most areas of these soils are farmed. They have good potential for trees, hay, and pasture. They have fair potential tor cultivated crops and for most sanitary facilities and as building sites.

These soils are suited to occasional cultivated crops, but there is a severe hazard of erosion. Conservation tillage, winter cover crops, and grassed waterways help to prevent damage from erosion. Slopes that are long and smooth enough are suitable for terraces and farming on the contour. Proper managment of crop residue and green manure crops helps control erosion, maintains tilth, improves and maintains organic matter content, and increases water infiltration.

The use of these soils for pasture and hay is very effective in controlling erosion. Overgrazing should be avoided. Grazing when the soil is too wet causes surface compaction, poor tilth, and excessive runoff. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture and soil in good condition.

These soils are suited to trees, and some areas have stands of native hardwoods.

These soils are suited to sanitary facilities and building sites if proper design and installation procedures are used. If septic tank absorption fields and dwellings are installed, the area can be graded to modify the slope. Foundations for dwellings and small commercial buildings should be reinforced to help overcome shrinking and swelling. Roads and streets can be strengthened by adding extra base material.

This complex is in capability subclass IVe; woodland suitability subclass for Menfro soil is 3o, and for Bucklick soil is 3o.

18E—Menfro-Bucklick silt loams, 14 to 20 percent slopes. This complex consists of moderately steep, well drained soils on convex, uneven side slopes. It is 50 to 60 percent Menfro soils and from 30 to 40 percent Bucklick soils. Individual areas range from 10 to 100 acres. The Menfro soils are on convex, upper and middle side slopes. The Bucklick soils are on lower slopes and extend into drainageways. Most areas are cut up by drainageways that expose limestone bedrock. These soils are so intermingled that they could not be shown separately at the scale selected for mapping.

Typically, the Menfro soil has a surface layer of yellowish brown silt loam about 6 inches thick. The subsoil is about 34 inches thick. It is brown, firm, silty clay loam. The substratum to a depth of 60 inches or more is yellowish brown silt loam.

Typically, the Bucklick soil has a surface layer of dark brown silt loam about 6 inches thick. The subsoil extends to a depth of 60 inches. The upper part is yellowish red silty clay loam, the middle part is red silty clay, and the lower part is yellowish red silty clay. In some areas the subsoil is more than 60 inches deep.

Included with these soils in mapping are areas with less than 14 percent slopes. Some areas on the lower side slopes or on toe slopes have limestone rock outcrops. These inclusions make up about 10 percent of this unit.

Permeability of the Menfro and Bucklick soils is moderate, and surface runoff is rapid. The available water capacity is high in the Menfro soil and moderate in the Bucklick soil. Shrinking and swelling is moderate in both soils. Natural fertility is medium in both soils, and organic matter content is moderately low in the Menfro soil and low in the Bucklick soil. Reaction in both soils ranges from strongly acid to neutral in the subsoil and varies widely in the surface layer as a result of local liming practices.

Most areas of these soils are in woodland or pasture. They have good potential for grasses, legumes, and trees. They also have good potential for woodland wildlife habitat. Their potential for most sanitary facilities and as building sites is poor.

These soils are generally unsuitable for crops because slope is moderately steep. They should be tilled only when necessary for seeding pasture or hay. Where grasses and legumes are grown, conservation tillage is necessary in order to prevent damage from severe erosion. Seed should be planted early enough for good ground cover to be established before the end of the growing season. Nurse crops can be used to provide cover in late fall and winter until grasses and legumes are established.

When these soils are used for pasture, overgrazing should be avoided. Grazing when the soil is too wet causes surface compaction, poor tilth, and excessive runoff. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture and soil in good condition.

These soils are suited to trees, and many areas have stands of native hardwoods. The moderately steep slope causes a moderate hazard of erosion and equipment limitations, which need to be considered when planting and harvesting. These limitations can be partially overcome by proper management of ground cover to prevent damage from erosion and by timely use of equipment when the topsoil is dry and firm. Seeds and seedlings grow and do well if competing vegetation is controlled or removed. Timber stands need selected cutting to remove undesirable trees. New stands need protection from fire and grazing. These practices also improve the habitat for woodland wildlife, especially white-tailed deer and wild turkey.

These soils are suited to sanitary facilities and building sites if proper design and installation procedures are used. If septic tank absorption fields and dwellings are installed, the area should be graded to modify the slope. Foundations for dwellings and small commercial buildings need reinforcement to help overcome shrinking and swelling. Roads and streets can be strengthened by adding extra base material.

This complex is in capability subclass VIe; woodland suitability subclass for Menfro soil is 3r and for Bucklick soil is 3r.

19D—Menfro-Holstein silt loams, 9 to 14 percent slopes. This complex consists of strongly sloping, well drained soils on convex side slopes and ridgetops in the uplands. It is 45 to 55 percent Menfro soils and 30 to 40 percent Holstein soils. Individual areas range from 10 to more than 200 acres. The Menfro soils are on convex ridgetops and extend midway down the side slope. The Holstein soils are on the lower side slopes and extend into drainageways exposing sandstone outcrop in many places. These soils are so intermingled that they could not be shown separately at the scale selected for mapping.

Typically, the Menfro soil has a surface layer of dark yellowish brown silt loam about 7 inches thick. The subsoil is about 31 inches thick. The upper part is yellowish brown, friable silt loam, and the lower part is brown and yellowish brown, firm silty clay loam. The substratum to a depth of 60 inches or more is yellowish brown silt loam.

Typically, the Holstein soil has a surface layer of dark yellowish brown silt loam about 8 inches thick. The subsoil is yellowish red clay loam and extends to a depth of 65 inches or more.

Included with these soils in mapping are areas where slope is less than 9 percent on smooth side slopes. Also included are areas of sandstone rock outcrop and areas that are severely eroded. In the eroded areas the original surface soil is absent or is only 2 or 3 inches thick and is more difficult to till. These inclusions make up about 6 percent of the unit.

Permeability of the Menfro and Holstein soils is moderate. Surface runoff is rapid, and the available water capacity is high in both soils. Shrinking and swelling is moderate. Natural fertility is medium in the Menfro soil and low in the Holstein soil. The organic matter content is moderately low in the Menfro soil and low in the Holstein soil. Reaction ranges from strongly acid to slightly acid in the subsoil, and it varies widely in the surface layer as a result of local liming practices. The surface layer of both soils is friable and fairly easy to till. But in areas where it is mixed with subsoil material the surface layer has a tendency to crust after heavy rains.

Most areas of these soils are farmed. A few very severely eroded areas have been abandoned. These soils have good potential for trees, hay, and pasture. They have fair potential for cultivated crops and for most sanitary facilities and building sites.

These soils are suited to occasional cultivation where slopes are smooth. If they are cultivated there is a severe hazard of erosion. Conservation tillage, winter cover crops, and grassed waterways help to prevent erosion. Areas of these soils that are long and smooth are suitable for terraces and farming on the contour. Proper management of crop residue and the addition of other organic matter help control erosion, maintain tilth, maintain and improve the level of organic matter, and increase water infiltration.

The use of these soils for pasture and hay is very effective in controlling erosion. Overgrazing should be avoided. Grazing when the soil is too wet causes surface compaction, poor tilth, and excessive runoff. Gullies should be shaped and seeded to grass. This will help control erosion and permit crossing with machinery that is needed to mow and maintain pastures. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture and soil in good condition.

These soils are suited to trees, and a few areas remain in native hardwoods. Tree seeds and seedlings grow well if competing vegetation is removed or controlled. New stands need protection from fire and grazing.

These soils are suitable for sanitary facilities and building sites if proper design and installation procedures are used. If septic tank absorption fields and dwellings are installed, the area should be graded to modify the slope. Foundations for dwellings and small commercial buildings should be designed to prevent structural damage caused by shrinking and swelling. Roads and streets can be strengthened by adding extra base material.

This complex is in capability subclass IIIe; woodland suitability subclass 3o.

19E—Menfro-Holstein silt loams, 14 to 20 percent slopes. This complex consists of moderately steep, well drained soils on upland, convex side slopes. It is 45 to 55 percent Menfro soils and 30 to 40 percent Holstein soils. Most areas are cut up by shallow drainageways. Individual areas of this unit range from 10 to more than 200 acres. The Menfro soil is on the upper and middle side slopes, and the Holstein soil is on the lower part of the side slopes and extends into drainageways. These soils are so intermingled that they could not be shown separately at the scale selected for mapping.

Typically, the Menfro soil has a surface layer of dark yellowish brown, friable silt loam about 5 inches thick.

The subsoil is about 35 inches thick. The upper part is strong brown, firm silty clay loam, and the lower part is strong brown, friable silt loam. The substratum to a depth of 60 inches or more is strong brown silt loam.

Typically, the Holstein soil has a surface layer of brown silt loam about 5 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is yellowish brown loam, the middle part is yellowish red clay loam, and the lower part is strong brown sandy clay loam and loam.

Included with these soils in mapping are areas where slope is less than 14 percent. Also included are areas of sandstone bedrock outcrop. These areas normally occur on the lower side slopes and toe slopes. Some areas of this unit are severely eroded. In most of these areas the surface layer and subsoil are mixed or the surface layer is only 2 or 3 inches thick. These inclusions make up about 6 percent of this unit.

Permeability of the Menfro and Holstein soils is moderate. Surface runoff is rapid, and the available water capacity is high. Shrinking and swelling are moderate. Natural fertility is medium in the Menfro soil and low in the Holstein soil. Organic matter content is moderately low in the Menfro soil and low in the Holstein soil. Reaction ranges from strongly acid to slightly acid in the subsoil, and it varies widely in the surface layer as a result of local liming practices. The surface layer of both soils is friable and fairly easy to till, but in areas where the surface layer is mixed with the subsoil it has a tendency to crust after heavy rains.

Nearly all areas of these soils are in woodland or pasture. They have good potential for trees, grasses, and legumes. They have poor potential for cultivated crops and fair potential for most sanitary facilities and building sites.

These soils are generally unsuitable for crops because slope is moderately steep. They should be tilled only when necessary for seeding pasture or hay. Where grasses and legumes are grown, conservation tillage is necessary to help prevent damage from severe erosion. Seed should be planted early enough for good ground cover to be established before the end of the growing season. Nurse crops can be used to provide cover in late fall and winter until the grasses and legumes are established. Gullies should be shaped and seeded with grass. This will help control erosion and permit crossing with machinery for mowing and maintaining pastures.

If these soils are used for pasture, overgrazing should be avoided. Grazing when the soil is too wet causes surface compaction, poor tilth, and excessive runoff. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing help keep the pasture and soil in good condition.

These soils are suited to trees, and some areas have stands of native hardwoods. The moderately steep slope causes a moderate hazard of erosion and equipment limitations, which need to be considered when planting and harvesting. Seeds and seedlings grow well if competing vegetation is controlled or removed. Timber stands need thinning and selective cutting. New stands need protection from fire and grazing.

These soils are suitable for sanitary facilities and building sites if proper design and installation procedures are used. If septic tank absorption fields or dwellings are installed, the area can be graded to modify the slope. Foundations for dwellings and small commercial buildings can be designed to prevent structural damage caused by shrinking and swelling. Roads and streets can be strengthened by adding extra base material.

This complex is in capability subclass IVe; woodland suitability subclass 3r.

20E—Poynor cherty silt loam, 14 to 30 percent slopes. This moderately steep and steep, well drained soil is on side slopes of the uplands. Individual areas are irregular in shape and range from 10 to more than 400 acres.

Typically, the surface layer is brown cherty silt loam about 4 inches thick. The subsurface layer is yellowish brown cherty silt loam about 6 inches thick. The subsoil extends to a depth of 64 inches or more. The upper part is strong brown cherty silt loam, the middle part is yellowish red cherty silty clay loam, and the lower part is red silty clay. In some areas the subsoil extends to a depth of less than 60 inches.

Included with this soil in mapping are small areas of Menfro and Peridge soils. The Menfro soils are on ridgetops and on the upper parts of side slopes. The Peridge soils are near the edges of the upper and lower parts of the side slopes and are occasionally on ridgetops. These inclusions make up about 10 percent of this unit.

This Poynor soil has moderate permeability. Surface runoff is medium or rapid, and the available water capacity is moderate. Natural fertility and organic matter content are low. Reaction ranges from extremely acid to medium acid in the subsoil and varies widely in the surface layer as a result of local liming practices. The surface layer is 10 to 50 percent chert fragments. Limestone and sandstone fragments on the surface are common. The chert content in the upper 24 inches restricts root development somewhat and causes this soil to be droughty.

Most of this soil is in woodland. Some areas where there are smoother slopes and fewer stones on the surface are used for pasture. This soil has fair potential for timber, and some of the less sloping and smoother areas have fair potential for pasture. Potential for sanitary facilities and building sites is poor.

Some areas of this soil are suited to pasture and hay. This is an effective method of controlling erosion. Overgrazing or grazing when the soil is too wet causes surface compaction, excessive runoff, erosion, and poor tilth. Restricted use during wet periods as well as proper stocking, pasture rotation, and timely deferment of grazing help to keep the pasture and soil in good condition.

This soil is suited to trees and many areas remain in woodland. Because of the moderately steep and steep slope, there are moderate limitations to the use of equipment for planting and harvesting. Tree seeds, cuttings, and seedlings survive well if competitive vegetation is controlled. Once trees are established on this soil, growth is relatively slow because of droughtiness.

This soil is generally unsuitable for sanitary facilities and building sites because of slope.

This soil is in capability subclass VIs; woodland suitability subclass 4f.

21D—Menfro-Bucklick silt loams, karst, 5 to 20 percent slopes. This complex consists of moderately sloping to moderately steep, well drained soils in areas that have numerous sinkholes. It is generally about 60 to 70 percent Menfro soils and 25 to 35 percent Bucklick soils. In shallow depressions, however, Menfro soils make up as much as 90 percent of the complex. Topographically, these sinkholes vary in depth from a small indentation of a few feet to a maximum of 100 feet or more in diameter. Most of them vary in depth from 10 to 30 feet. The most common form of sinkhole is in a funnel shape. The Menfro soils are in areas between the sinkholes and extend partway into the sinkhole. Bucklick soils are on the middle and lower side slopes of the sinkholes. Individual areas range from 10 to more than 200 acres. These soils are so intermingled that they could not be shown separately at the scale selected for mapping.

Typically, the Menfro soil has a surface layer of brown silt loam about 8 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is brown silt loam, the middle part is brown silty clay loam, and the lower part is strong brown silt loam.

Typically, the Bucklick soil has a surface layer of dark brown silt loam about 6 inches thick. The subsoil is about 45 inches thick. The upper part is yellowish red silty clay loam, the middle part is yellowish red silty clay, and the lower part is yellowish red silty clay. Below this is hard limestone.

Included with this soil in mapping are areas of limestone outcrops normally on the lower part of the side slopes or on bottoms of sinkholes. Also included are small areas of the Wakeland soils on bottoms of sinkholes. These inclusions make up about 5 percent of this unit.

The Menfro and Bucklick soils have moderate permeability. Surface runoff is medium to rapid. The available water capacity is high in the Menfro soil and moderate in the Bucklick soil. The shrink-swell potential is moderate in both soils. Natural fertility is medium. The organic matter content is moderately low in the Menfro soil and low in the Bucklick soil. Reaction ranges from medium acid to neutral in the surface layer and from strongly acid to neutral in the subsoil. The surface layer is friable and fairly easily tilled.

Most areas of this map unit are in woodland or pasture. It has good potential for trees, hay, and pasture. It also has good potential for woodland wildlife habitat. Potential for cultivated crops and for most sanitary facilities and building sites is fair.

The moderately sloping areas of this map unit are suited to occasional cultivation. There is, however, a hazard of severe erosion. Conservation tillage, winter cover crops, and proper residue management help to control erosion and maintain soil tilth. Wet spots in the bottoms of some sinkholes cause problems and are difficult to drain.

The use of these soils for pasture and hay is effective in controlling erosion. Overgrazing should be avoided. Proper stocking, pasture rotation, and restricted use during wet periods help keep the pasture and soil in good condition.

These soils are suited to trees, and many areas have existing stands of native hardwoods. Woodland is the best use in areas where the number and size of the sinkholes make the use of farm machinery impractical. Existing timber stands need selective cutting of undesirable trees and protection from fire and grazing. These practices also improve the habitat for woodland wildlife, especially white-tailed deer and wild turkey.

These soils are suitable for building sites, especially the moderately sloping areas of the Menfro soil that are between the sinkholes. Basement walls, footings, and foundations for dwellings and small commercial buildings should be properly designed to prevent structural damage caused by moderate shrinking and swelling. Roads can be strengthened by adding extra base material. These soils are suitable for sanitary facilities, especially the less sloping areas of the Menfro soil between the sinkholes. There is a potential danger, however, of polluting the groundwater if sewage seeps into the sinkholes. The sinkholes are a geologic problem rather than a soil problem, and should be considered in determining the potential limitations for urban development of the areas.

This complex is in capability subclass IVe; woodland suitability subclass is 3o for Menfro soils and 3o for Bucklick soils.

22—Wilbur silt loam, frequently flooded. This nearly level, moderately well drained soil is on bottom land in alluvium washed mainly from loess-covered uplands. Individual areas of this soil are irregular in shape and range from 10 to more than 400 acres.

Typically, the surface layer is dark brown silt loam about 9 inches thick. The substratum to a depth of 60 inches or more is brown, mottled, weakly stratified silt loam.

Included with this soil in mapping are a few higher areas of well drained Haymond soils and lower areas of somewhat poorly drained Wakeland soils. These inclusions make up about 10 percent of this unit.

This Wilbur soil has moderate permeability. Surface runoff is slow, and the available water capacity is very high. The water table is within 3 to 6 feet of the surface at times late in winter and in spring. Natural fertility is high, and the organic matter content is moderately low. Reaction ranges from medium acid to neutral throughout the soil. The surface layer is friable and easily tilled throughout a wide range in moisture content.

Nearly all areas of this soil are farmed. It has good potential for cultivated crops, hay, pasture, and trees. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to corn, soybeans, small grains, and grasses and legumes for hay and pasture. Wet spots in the field can be eliminated by land grading. Returning crop residue to the soil helps to maintain fertility and tilth. If this soil is used for pasture, overgrazing and grazing when the soil is too wet should be avoided. Proper stocking, pasture rotation, and restricted use during wet periods help to keep the pasture and soil in good condition.

This soil is suited to trees, and a few small areas remain in timber. It has good potential for valuable trees such as black walnut and pecan. Tree seeds and seedlings grow well if competing vegetation is removed or controlled. This can be accomplished by site preparation or by spraying or cutting.

This soil is generally unsuitable for sanitary facilities and building sites because of the hazard of flooding. Dwellings and other buildings should be located above known flood levels.

This soil is in capability subclass IIw; woodland suitability subclass 1o.

23—Wakeland silt loam, frequently flooded. This nearly level, somewhat poorly drained soil is on bottom land in alluvium washed mainly from the loess-covered uplands. Individual areas are irregular in shape and range from 10 to more than 400 acres.

Typically, the surface layer and subsurface layer are dark brown and brown silt loam to a depth of about 12 inches. The substratum extends to a depth of 60 inches or more. The upper part is grayish brown, mottled silt loam, and the lower part is light brownish gray, mottled silt loam. In some areas the surface layer is thicker than 12 inches.

Included with this soil in mapping are a few areas of moderately well drained Wilbur soil along drainageways. These inclusions make up about 10 percent of this unit.

This Wakeland soil has moderate permeability. Surface runoff is very slow, and the available water capacity is very high. The water table is within 1 foot to 3 feet of the surface at times in late winter and spring. Natural fertility is high, and the organic matter content is low. Reaction ranges from medium acid to neutral throughout the soil. The surface layer is friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are farmed. It has good potential for cultivated crops, hay, pasture, and trees. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to corn, soybeans, small grains, and grasses and legumes for hay and pasture. Wetness is a concern and can be overcome by surface drainage and by building diversions to prevent water at higher elevations from running onto this soil. The return of crop residue to the soil helps to maintain fertility and tilth.

This soil is suited to trees, and a few small areas remain in timber. Tree seeds and seedlings grow well if competing vegetation is controlled. This can be accomplished by site preparation, prescribed burning, or by spraying, cutting, or girdling.

This soil is generally unsuitable for sanitary facilities and building sites because of the hazard of flooding. Building sites should be located above known flood levels.

This soil is in capability subclass IIw; woodland suitability subclass 2o.

31—Adler silt loam. This nearly level, deep, moderately well drained soil is on flood plains and alluvial fans and along drainageways in the uplands. This soil is subject to rare flooding. It is protected by levees, but may flood if a levee breaks or it receives runoff from adjacent areas. Individual areas of this unit are irregular in shape and range from 100 to 800 acres.

Typically, the surface layer is dark brown silt loam about 8 inches thick. The substratum extends to a depth of 60 inches or more and is stratified in the lower part. The upper part is brown silt loam, and the middle and lower parts are brown, mottled silt loam. In some areas grayish mottles are more than 20 inches below the surface.

Included with this soil in mapping are small areas that are subject to occasional flooding. Also included are small slightly lower areas of the somewhat poorly drained Falaya soils. These inclusions make up about 10 percent of this unit.

This Adler soil has moderate permeability. The surface runoff is slow, and the available water capacity is very high. During the winter and spring this soil has a water table within 2 or 3 feet of the surface. Organic matter content is moderately low, and natural fertility is high. Reaction ranges from medium acid to mildly alkaline in all horizons. This soil is friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are used for row crops. It has good potential for cultivated crops, hay, pasture, and trees. It has poor potential for sanitary facilities and as building sites.

This soil is suited to soybeans, cotton, corn, wheat, grain sorghum, and grasses and legumes for hay and pasture. Wetness or local ponding is the major management concern. Land grading enhances drainage and eliminates potholes. Managing crop residue by leaving a protective cover on the surface and mixing the remainder into the surface soil reduces crusting, improves fertility, and maintains organic matter content.

This soil is in capability class I; woodland suitability subclass 1o.

32—Allemands muck. This nearly level, very poorly drained soil is in low lying, depressional areas in the former channel of the Mississippi River. This soil is subject to frequent flooding and ponding. It is protected by levees but may flood if a levee breaks or it receives runoff from adjacent areas. Individual areas range from 10 to more than 300 acres.

Typically, the surface layer and subsurface layer are black muck about 39 inches thick. Underlying the organic layers to a depth of 60 inches or more is dark gray silty clay loam.

Included with this soil in mapping are areas of poorly drained, clayey, Roellen soils in similar positions and areas with 6 to 16 inches of muck surfaces. These inclusions make up about 10 percent of this unit.

This Allemands soil has rapid permeability in the organic material and moderately slow permeability in the underlying silty horizons. Because of the high water table there is no natural internal drainage. Natural fertility is high, and the organic matter content is very high. Reaction ranges from medium acid to moderately alkaline in the organic material and from neutral to moderately alkaline in the silty underlying horizons. Root development is limited to a depth of 2 or 3 feet because the water table is high.

Nearly all areas of this soil are used for cultivated crops or pasture. It has fair potential for these uses if it is adequately drained. It has poor potential for sanitary facilities and as building sites.

This soil is suited to corn, soybeans, and grasses for hay and pasture. The high water table must be controlled for best production. Tile drains and water pumps can be used to control the water table. Corn and soybeans that require a short growing season are recommended because of the difficulties in working the soil in the spring. Pasture mixtures that consist of water-tolerant grass varieties, such as reed canarygrass, will give best results for pasture and hay production.

This soil is in capability subclass IVw.

33—Alligator silty clay. This deep, nearly level, poorly drained soil is on convex, low ridges and depressions on flood plains. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or it receives runoff from adjacent areas. Individual areas are irregular in shape and range from 10 to 200 acres.

Typically, the surface layer is dark gray silty clay about 6 inches thick. The subsoil is about 40 inches thick. It is gray and dark gray, mottled, firm very strongly acid clay. The substratum to a depth of about 60 inches or more is dark gray, mottled neutral clay.

Included with this soil in mapping are small areas of Sharkey and Tunica soils. The poorly drained Sharkey soils have a slightly acid to alkaline subsoil and the poorly drained Tunica soils have loamy layers at a depth of 20 to 36 inches. The Sharkey and Tunica soils are on the slightly lower landscape positions. Some areas are occasionally flooded for brief periods when drainage ditches overflow. These inclusions make up about 8 percent of this unit.

This Alligator soil has very slow permeability. Surface runoff from cultivated areas is very slow, and the available water capacity is moderate. The shrink-swell potential is very high. Natural fertility is medium, and the organic matter content is low. Reaction ranges from strongly acid and very strongly acid in the subsoil to neutral where the surface layer has been limed. The surface layer is firm and difficult to till, and root development is restricted because of poor aeration.

Most areas of this soil are used for row crops, especially soybeans. This soil has fair potential for cultivated crops, hay, pasture, wildlife habitat, and trees. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to soybean production, but milo and small grains are also grown. Because the wet conditions in spring and fall shorten the usable growing season, soybeans are the best adapted crop. Drainage by means of surface drains and land grading, adequate liming, and careful timing of tillage operations when the moisture content is optimum are necessary for best crop production. Returning crop residue to the soil improves fertility and tilth.

This soil is in capability subclass IIIw; woodland suitability subclass 2w.

34—Beulah fine sandy loam. This nearly level, somewhat excessively drained soil is on high terraces or old natural levees. Individual areas are somewhat irregular to elongated and range from about 10 to 80 acres.

Typically, the surface layer and subsurface layer are brown fine sandy loam to a depth of about 8 inches. The subsoil is about 32 inches thick. It is dark yellowish brown, yellowish brown, and brownish yellow, friable fine sandy loam. The substratum extends to a depth of 60 inches or more. It is yellowish brown loamy sand and brown sandy loam. In some areas the surface layer is very dark grayish brown or dark brown.

Included with this soil in mapping are small areas of the well drained Bosket soils, somewhat poorly drained Dundee soils, excessively drained Malden soils, and moderately well drained Tiptonville soils. Bosket and Tiptonville soils are similar to the Beulah soil in landscape position but contain more clay. Dundee soils are along drainageways and have more clay. Malden soils are on the slightly higher ridges and have sandy textures throughout. These inclusions make up about 15 percent of this unit.

This Beulah soil has moderately rapid permeability in the subsoil and rapid permeability in the substratum. Runoff is slow, and the available water capacity is moderate. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from very strongly acid to medium acid, except it ranges to neutral in the surface layer because of local liming practices. The surface layer is very friable and can be worked throughout a wide range in moisture content.

Most of this soil is used for cultivated crops. It has fair potential for row crops, small grains, pasture, and hay. It has fair potential for most sanitary facilities and as building sites.

This soil is suited to cotton, soybeans, wheat, rye, and vetch. It is suited to melons and cantaloups. Wind erosion is a slight hazard if the larger areas of this soil are not protected. Cover crops and wind stripcropping can be used to protect the soil. Conservation tillage, cover crops, and practices to maintain or build organic matter content improve fertility, reduce crusting, and increase water intake. This soil tends to be droughty during long, dry periods. Some areas of the soil have been land graded and irrigated.

This soil is suitable for building sites and for onsite sewage disposal where the volume can be handled with a filter field. Areas where sewage lagoons or sanitary landfills may be located should be treated to prevent seepage.

This soil is in capability subclass IIs; woodland suitability subclass 2o.

35—Diehlstadt loamy coarse sand. This nearly level, somewhat poorly drained soil is on flats or in slightly concave depressions and basins. This soil is subject to occasional flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are generally elongated in a north to south direction. Areas range from about 20 to more than 200 acres.

Typically, the surface layer and subsurface layer are black loamy coarse sand to a depth of about 18 inches. The substratum extends to a depth of 60 inches or more. The upper part is very dark gray fine sand, the middle part is multicolored, mottled fine sand with thin strata of coarse and very coarse sand, and the lower part is brown fine sand.

Included with this soil in mapping are small areas of Cairo, Cooter, and Sikeston soils. Cairo and Cooter soils are clayey over sand. Sikeston soils contain more clay to a depth of 40 inches or more. In some places this soil has thin layers or pockets of loamy material or thin horizons or pockets of concretions and oxides (iron and manganese) throughout.

This Diehlstadt soil has moderate or moderately rapid permeability in the surface layer and rapid permeability in the substratum. Surface runoff is slow, and available water capacity is low. A water table commonly occurs about 1 foot below the surface during wet periods, which is mostly during late winter and spring. Natural fertility is high, and organic matter content is moderate. Reaction ranges from strongly acid to neutral in the surface layer and medium acid to neutral below.

Most areas of this soil are used for row crops. It has fair potential for row crops, pasture, and woodland and poor potential for sanitary facilities and as building sites.

When irrigated, this soil is suited to soybeans, corn, grain, sorghum, and pasture and hay. Land grading helps to eliminate potholes and provides a suitable grade for application of irrigation water. Enough crop residue should be left on the soil to furnish cover and the remainder mixed into the surface soil to help maintain organic matter content and soil tilth.

There is little use of this soil for pasture and hay. Overgrazing or grazing when the soil is wet causes the surface to be compacted and results in poor tilth. Restricted use during wet periods and proper stocking are necessary to keep both pasture and soil in good condition. Stands of deep rooted perennials may be reduced during wet periods.

This soil is suited to trees, and a few small areas remain in native bottom land hardwoods. Tree cuttings and seedlings grow well once established, but the wetness of the soil generally causes some seedling mortality. Surface drainage by a system of field ditches or building up tree rows reduces wetness for young trees.

This soil is in capability subclass IIIw; woodland suitability subclass 2o.

36—Bosket fine sandy loam. This nearly level, well drained soil is on natural levees and terraces. Areas are generally slightly convex but include some concave areas that serve as natural drainageways.

Typically, the surface layer is dark brown fine sandy loam about 9 inches thick. The subsurface layer is dark yellowish brown fine sandy loam about 12 inches thick. The subsoil is about 24 inches thick. The upper part is yellowish brown, very friable fine sandy loam, and the lower part is brown, firm sandy clay loam. The substratum to a depth of about 60 inches or more is yellowish brown sand. In some places the surface layer is lighter colored, and in some places the subsoil is more than 25 inches deep.

Included with this soil in mapping are small areas of well drained Dubbs soils and moderately well drained Tiptonville soils. They occupy similar positions on the landscape but have less sand. These inclusions make up 5 to 10 percent of the unit.

This Bosket soil has moderate permeability. Surface runoff is slow to medium, and the available water capacity is moderate. Organic matter content is moderate, and the natural fertility is medium. Reaction ranges from strongly acid to slightly acid throughout the soil. This soil responds well to the addition of plant nutrients. The surface layer is very friable and easily tilled throughout a wide range in moisture content.

Most of this soil is in row crops, such as corn, cotton, soybeans, and wheat. A few specialty crops such as watermelons, cantaloups, and strawberries are also grown. This soil has good potential for row crops and speciality crops. It has good potential for sanitary facilities and as building sites.

Some areas of this soil are subject to slight water erosion, and the more sandy areas are subject to wind erosion. Surface grading, leveling, and cover crops or stripcropping help to overcome these limitations. Slight depressional areas accumulate runoff and are ponded after heavy rains, but generally for very short periods.

This soil is suitable for sanitary facilities and building sites. Where sewage lagoons and trench type landfills are constructed, it is necessary to seal the bottoms to prevent seepage.

This soil is in capability class I; woodland suitability subclass 2o.

37A—Bowdre silty clay loam, 0 to 3 percent slopes. This nearly level and gently sloping, somewhat poorly drained soil formed in thin silty or clayey sediments over loamy alluvium. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Most areas are on narrow to broad undulating ridges ranging in size from 10 to 200 acres.

Typically, the surface layer is very dark grayish brown silty clay loam about 5 inches thick. The subsoil is about 25 inches thick. The upper part is very dark grayish brown silty clay loam, and the lower part is mottled, dark grayish brown and dark brown silt loam. The substratum to a depth of 60 inches or more is grayish brown silt loam and very fine sandy loam. In some areas the overlying clayey sediments range from 10 to 26 inches in thickness.

Included with this soil in mapping are small areas of somewhat poorly drained Commerce soils at the same elevation and poorly drained Tunica and Sharkey soils at the lower elevations. Areas between the levee and the Mississippi River are subject to frequent flooding. These inclusions make up about 10 percent of this unit.

This Bowdre soil has slow permeability in the upper part and moderate permeability in the lower part. Runoff is slow, and the available water capacity is high. Natural fertility is high, and the organic matter content is moderate. Soil reaction ranges from medium acid to neutral in the surface layer and from slightly acid to moderately alkaline below.

Most areas of this soil are used for cultivated crops. It has fair potential for most cultivated crops, pasture, and woodland. It has poor potential for sanitary facilities and as building sites.

This soil is suited to cultivated crops and small grains. Drainage by means of surface drains, land grading, and timely tillage when the moisture content is optimum are necessary for best crop production.

This soil is in capability subclass IIw; woodland suitability subclass 1c.

38A—Broseley loamy fine sand, 0 to 3 percent slopes. This nearly level, well drained and somewhat excessively drained soil is on broad, gently undulating natural levees. They are somewhat irregular in shape and generally are oriented in a north to south pattern. Individual areas range from 5 to more than 400 acres.

Typically, the surface layer is brown loamy fine sand about 12 inches thick. The subsurface layer is dark yellowish brown loamy fine sand about 21 inches thick. The subsoil is about 23 inches thick. The upper part is brown fine sandy loam, the middle part is dark yellowish brown sandy clay loam, and the lower part is dark yellowish brown fine sandy loam. The substratum to a depth of 60 inches or more is yellowish brown loamy fine sand. In some areas the surface layer is fine sand or sandy loam, and depth to the subsoil is more than 40 inches.

Included with this soil in mapping are small areas of Bosket and Scotco soils. The well drained Bosket soils are in the small, lower areas, and the sandy, excessively drained Scotco soils are on the side slopes. These inclusions make up about 10 percent of this unit.

This Broseley soil has moderately rapid permeability; however, permeability in the surface layer, subsurface layer, and substratum is at a higher rate. Surface runoff is slow, and the available water capacity is moderate. Natural fertility is medium, and the organic matter content is moderately low. Reaction is strongly acid to slightly acid in the subsoil, but varies widely in the surface layer because of local liming practices. The surface layer is very friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are in cultivated crops. Some areas, however, are used as building sites. This soil has fair potential for cultivated crops, hay, pasture, sanitary facilities, and building sites.

This soil is suited to corn, soybeans, cotton, small grains, watermelons, and cantaloups. Water erosion is slight because most of the rainfall is absorbed by the soil. Wind erosion can be controlled by cover crops, wind stripcropping, and field windbreaks. Supplemental irrigation helps to overcome the droughtiness.

This soil is suitable for building sites. Onsite disposal of waste presents little problem because this soil is suitable for septic tank absorption fields. It is necessary to seal the bottom and sides of lagoons and sanitary landfills to avoid seepage.

This soil is in capability subclass IIs; woodland suitability subclass 4s.

39—Cairo silty clay. This nearly level, poorly drained soil is along concave drainageways, and in channels and basins. This soil is subject to frequent flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are seldom more than a quarter of a mile wide, but are generally several miles long. Areas range from about 20 to more than 200 acres.

Typically, the surface and subsurface layer are black silty clay and, combined, are about 18 inches thick. The subsoil is about 12 inches thick. It is very dark gray, mottled, firm silty clay. The substratum to a depth of 60 inches or more is mottled, strong brown, yellowish brown, and grayish brown loamy fine sand. In some places the sandy substratum is more than 40 inches beneath the surface. Some areas have layers of concretions and organic materials where the clay and sand contact.

Included with this soil in mapping are small areas of Diehlstadt, Cooter, Roellen, and Sikeston soils. Diehlstadt soils contain less clay and have more sand in the upper layers. Cooter soils are shallower to sand. Roellen soils do not have the sandy substratum. Sikeston soils have less clay and more sand. These included soils are similar in position to Cairo soils. They make up 10 to 12 percent of this unit.

This Cairo soil has very slow permeability in the clayey horizons and rapid permeability in the sandy substratum. Runoff is slow, and the available water capacity is moderate. A water table is in the substratum during most of the year. The natural fertility and the organic matter content are high. Reaction ranges from slighty acid to mildly alkaline throughout the soil. Tilth is poor. The surface layer and upper part of the subsoil crack when dry and swell when wet. Deep root development is restricted somewhat by the sandy substratum.

Most of this soil is used for cultivated crops. Some areas are used for pasture. It has good potential for summer annuals. This soil has fair potential for most perennials but good potential for those that are tolerant of wetness. It has good potential for trees but has poor potential for most sanitary facilities and as building sites.

This soil is suited to soybeans, cotton, and grain sorghum. Where artificial drainage is adequate, wheat is grown successfully. Wetness and the clayey nature of this soil are the main management concerns.

This soil accumulates runoff from the higher positions of its watershed, and the permeability is very slow. This soil holds large amounts of water, but only a moderate amount is available to plants. The water table in the sandy substratum is only a small limitation for annuals but deserves consideration when establishing field ditches and land grading. The use of field ditches or land grading generally improves drainage. Keeping crop residue on the surface and mixing part of it into the soil reduces crusting and improves tilth.

The use of this soil for pasture and hay is limited, and most pastures are small. Overgrazing or grazing when the soil is wet results in compaction and poor tilth. Proper stocking, timely grazing, and restricted use during wet periods maintain the pasture in good condition.

This soil is in capability subclass IIIw; woodland suitability subclass 2w.

40—Clana loamy fine sand. This nearly level, moderately well drained soil is on convex ridges and along drainageways on natural levees. Individual areas range from about 10 to several thousand acres.

Typically, the surface layer is dark brown loamy fine sand about 7 inches thick. The subsoil is about 26 inches thick. The upper part is dark yellowish brown, mottled loamy fine sand, an the lower part is yellowish brown, mottled loamy fine sand. The substratum to a depth of 60 inches or more is dark yellowish brown, mottled loamy fine sand.

Included with this soil in mapping are small areas of Diehlstadt, Lilbourn, Malden, and Sikeston soils. Diehlstadt soils are somewhat poorly drained, Sikeston soils are poorly drained, and both are in old stream channels and depressions. Lilbourn soils are somewhat poorly drained and are in the lower areas. Malden soils are excessively drained and are in the highest areas on the landscape. These inclusions make up about 10 to 12 percent of this unit.

This Clana soil has rapid permeability. Surface runoff is slow, and the available water capacity is low. A high water table is within 2 feet of the surface during the winter and spring, but it drops below 5 feet during the summer. Natural fertility is medium, and organic matter content is moderate. Reaction ranges from medium acid to neutral. The surface layer is very friable and easily tilled throughout a wide range in moisture content.

Most of this soil is used for cultivated row crops. It has fair potential for crops commonly grown in the area. It has fair potential for pasture and hay and for trees. It has poor potential for sanitary faclities and as building sites.

This soil is suited to cotton, corn, soybeans, wheat, and grain sorghum. It is subject to wind erosion where not protected. Most of the damage is to young crops. This erosion can be controlled by cover crops, wind stripcropping, or field windbreaks. Conserving crop residue helps to control wind erosion and increases infiltration and fertility. This soil is droughty during hot, dry periods. Overhead irrigation systems work well and help to overcome this limitation.

This soil is generally unsuitable for sanitary facilities because of wetness, poor filtration, and seepage. The high water table is 2 or 3 feet from the surface in the spring and causes septic tank absorption fields to work poorly. In the summer after the water table has dropped, the effluent from the filter field moves downward too rapidly to be properly filtered, and pollution of the ground water is possible. Sewage lagoons should have the bottoms sealed to prevent seepage. This soil is generally unsuited to building sites. Cutbanks are unstable and slough easily. Dwellings without basements are better suited than those with basements.

This soil is in capability subclass IIIs; woodland suitability subclass 3s.

41A—Caruthersville very fine sandy loam, 0 to 3 percent slopes. This nearly level, moderately well drained soil is on the flood plain along the Mississippi River. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are irregular in shape and range from 10 to several thousand acres.

Typically, the surface layer is dark grayish brown very fine sandy loam about 8 inches thick. The subsurface layer is dark grayish brown and grayish brown very fine sandy loam about 5 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is dark grayish brown very fine sandy loam, the middle part is grayish brown very fine sandy loam, and the lower part is stratified, dark grayish brown, grayish brown, and brown very fine sandy loam and silt loam. In some areas the surface layer is fine sand about 20 inches thick.

Included with this soil in mapping are small areas of Commerce, Crevasse, and Steele soils. Commerce soils are somewhat poorly drained and are on the lower parts of the landscape. Crevasse and Steele soils are on similar positions on the landscape but have more sandy textures. Areas between the levee and the Mississippi River are subject to frequent flooding. These inclusions make up about 10 percent of this unit.

This Caruthersville soil has moderate permeability. Surface runoff from cultivated areas is slow to medium, and the available water capacity is high. Natural fertility is high, but the organic matter content is moderately low. The surface layer is friable and easy to till throughout a wide range in moisture content. Reaction ranges from neutral to mildly alkaline throughout the soil.

Most areas of this soil are used for cultivated row crops. It has good potential for cultivated crops and for openland and woodland wildlife habitat in areas around borrow pits and along the Mississippi River. It has poor potential for sanitary facilities and as building sites.

This soil is suited to soybeans and corn. It is subject to wind erosion. Winter cover crops and returning crop residue to the soil help to eliminate this concern and improve fertility. Some areas of this soil are subject to frequent flooding late in winter and early in spring. This flooding, however, does not seriously affect the growing season for soybeans and corn. Small areas of this soil around borrow pits provide food and cover for various kinds of wildlife. There are still small wooded areas of cottonwood and sycamore trees.

This soil is in capability class I; woodland suitability subclass 1o.

42—Commerce silty clay loam. This nearly level, somewhat poorly drained soil is on flood plains along the Mississippi River. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are irregular in shape and range from 10 to more than 800 acres.

Typically, the surface layer is dark grayish brown silty clay loam about 12 inches thick. The subsoil is about 11 inches thick. It is dark grayish brown silt loam mottled with dark brown. The substratum to a depth of 60 inches or more is gray and grayish brown silty clay loam with yellowish brown mottles. In some areas the substratum has thin strata of loamy fine sand, fine sandy loam, or fine sand.

Included with this soil in mapping are small areas of moderately well drained Caruthersville soils, poorly drained Jackport soils on the slightly higher parts of the landscape, and poorly drained Sharkey and Mhoon soils at the lower elevations. Areas between the levee and the Mississippi River are subject to frequent flooding. These inclusions make up about 15 percent of this unit.

This Commerce soil has moderately slow permeability. Runoff from cultivated fields is medium to slow, and the available water capacity is high. A seasonal high water table is from 1.5 to 4 feet below the surface late in winter and early in spring. Natural fertility is high, and the organic matter content is moderately low. Reaction ranges from medium acid to mildly alkaline in the surface layer, slightly acid to moderately alkaline in the subsoil, and from neutral to moderately alkaline in the substratum.

Most areas of this soil are farmed. It has good potential for cultivated crops, woodland, and for openland and woodland wildlife habitat. It has poor potential for sanitary facilities and as building sites.

This soil is suited to corn, soybeans, cotton, and wheat when protected from spring flooding. In areas that frequently flood, the main crops are soybeans and, to a lesser extent, corn. Ditches and surface drains are required in most areas to remove excess water.

Cottonwood and sycamore plantings along the river help to catch debris from floodwaters and are also used for the production of pulpwood. This soil is suited to openland and woodland wildlife habitat. Borrow pits that contain water are a main source of water, food, and cover for wildlife.

This soil is in capability subclass IIw; woodland suitablity subclass 1o.

43—Cooter silty clay loam. This nearly level, moderately well drained soil is in channels and along braided streams dissecting old natural levees of the Mississippi River. This soil is subject to occasional flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. This soil formed in thin clayey alluvium that is underlain by sandy deposits. The concave channels and braided streams have a general north to south pattern. These areas are generally less than one-eighth of a mile wide, but may be several miles long. Individual areas range from 10 to 100 acres.

Typically, the surface layer and subsurface layer are black silty clay loam and silty clay which, combined, are about 18 inches thick. The contrasting sandy substratum extends to a depth of 60 inches or more. The upper part is very dark grayish brown, dark grayish brown, brown, and dark brown, mottled stratified layers of sand; the middle part is dark yellowish brown sand; and the lower part is very dark grayish brown sand that has thin strata of very dark gray sandy loam. Some areas have layers of organic materials where the clay and sand contact.

Included with this soil in mapping are small areas of Diehlstadt and Cairo soils. These soils are on landscape positions similar to those of Cooter soils. Diehlstadt soils, however, are sandy throughout, and Cairo soils have 20 to 40 inches of clayey sediment over sand. These inclusions make up 5 to 10 percent of this unit.

This Cooter soil has slow permeability in the clayey part but has rapid to very rapid permeability in the sandy substratum. Surface runoff is slow, and the available water capacity is low. Organic matter content is high, and natural fertility is medium. Reaction ranges from slightly acid to mildly alkaline throughout the soil.

This soil is difficult to till because of its clayey surface layer. The root zone for annual species is limited to the clayey surface layer.

Most areas of this soil are farmed. It has fair potential for cultivated crops, hay, pasture, and trees. It has poor potential for sanitary facilities and as building sites.

This soil is suited to cotton, corn, soybeans, small grains, and grasses. The major management concerns are ponding of runoff water from adjacent higher areas, a seasonal high water table, and low available water capacity. Surface drains work effectively to control ponding and to lower the water table, but they are hard to maintain because banks cave in readily. During periods of high evapo-transpiration, irrigation can relieve droughtiness, but only in large areas. During wet periods restricted use of pasture and pasture rotation help to keep the pasture and soil in good condition.

This soil is in capability subclass IIw; woodland suitability subclass 3c.

44—Crevasse soils. These nearly level and gently sloping, excessively drained soils are along the Mississippi River. They occur as sand bars or as overwash near old levee breaks. These soils are subject to frequent flooding. Individual areas are irregular in shape and range from 5 to 300 acres.

Typically, the surface layer is dark grayish brown sandy loam about 3 inches thick, but textures range from silty clay loam to sand. The substratum to a depth of 60 inches or more is brown fine sand and sand.

Included with these soils in mapping are areas of Caruthersville soils. Caruthersville soils have less sand throughout. Some areas have fine sandy loam and very fine sandy loam layers below a depth of 30 inches. Also included are a few small areas that do not flood. These inclusions make up about 10 percent of this unit.

These Crevasse soils have rapid permeability, and runoff is slow. Available water capacity, organic matter content, and natural fertility are low. Reaction ranges from neutral to moderately alkaline throughout the profile.

Most areas of these soils are sand bars or are covered with small trees or weeds. Some areas are used for crops, but yields vary greatly. These soils have poor potential for farming, sanitary facilities, and as building sites. They have fair potential for pasture and woodland.

These soils are generally unsuited to farming because of flooding and droughtiness.

These soils are suited to pasture and woodland. Permanent pasture provides cover and reduces wind erosion. Woodland areas control streambank erosion, provide cover and food for wildlife, and provide logs for pulpwood.

These soils are in capability subclass Vw; woodland suitability subclass 2s.

45—Diehlstadt sandy clay loam. This nearly level, somewhat poorly drained soil is on flats or in slightly concave depressions and basins. This soil is subject to occasional flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are generally elongated in a general north to south direction. Areas range from about 20 to more than 200 acres.

Typically, the surface layer is black sandy clay loam about 9 inches thick. The subsurface layer is black sandy clay loam, that has strata of loam to a depth of 21 inches. The substratum extends to a depth of 60 inches or more. The upper part is black, mottled coarse sand; the middle part is very dark grayish brown, mottled coarse sand; and the lower part is dark brown, mottled coarse sand. In some places this soil has horizons or pockets with horizons of concretions and oxides (iron and manganese).

Included with this soil in mapping are small areas of Diehlstadt soils that are loamy coarse sand. Also included are small areas of Cairo, Cooter, and Sikeston soils. Cairo and Cooter soils have clayey over sandy horizons. Sikeston soils contain more clay to a depth of 40 inches or more. These inclusions make up about 12 to 14 percent of this unit.

This Diehlstadt soil has moderate or moderately rapid permeability in the loamy horizons and rapid permeabililty in the lower sandy horizons. Surface runoff is slow, and the available water capacity is low. A water table commonly occurs about 1 foot below the surface during wet periods, which is mostly during late winter and spring. Natural fertility is high, and organic matter content is moderate. Reaction ranges from strongly acid to neutral in the surface horizons and medium acid to neutral below.

Most areas of this soil are used for row crops. It has fair potential for row crops, pasture, and woodland and poor potential for sanitary facilities and as building sites.

When irrigated, this soil is suited to soybeans, corn, grain sorghum, and pasture and hay. Land grading helps to eliminate potholes and provides a suitable grade for application of supplemental irrigation. Keeping crop residue on the soil furnishes cover, and mixing the remainder into the surface soil helps to maintain organic matter content and soil tilth.

There is little use of this soil for pasture and hay. Overgrazing or grazing when this soil is wet causes the surface to compact and results in poor tilth. Restricted use during wet periods and proper stocking are necessary to keep both pasture and soil in good condition. Stands of deep rooted perennials may be reduced during wet periods.

This soil is suited to trees, and a few small areas remain in native bottom land hardwoods. Tree cuttings and seedlings grow well once they are established, but wetness generally causes some seedling mortality. Surface drainage by a system of field ditches or building up tree rows reduces wetness for young trees.

This soil is in capability subclass IIIw; woodland suitability subclass 2o.

46—Dubbs silt loam. This nearly level, well drained soil is on natural levees and terraces. Most areas are slightly convex but include some concave areas that serve as natural drainageways.

Typically, the surface layer is dark brown silt loam about 9 inches thick. The subsoil is about 31 inches thick. The upper part is yellowish brown silty clay loam, the middle part is dark brown silty clay loam, and the lower part is dark brown loam. The substratum to a depth of 60 inches or more is yellowish brown loamy sand and light yellowish brown sand.

Included with this soil in mapping are small areas of moderately well drained Tiptonville soils and well drained Bosket soils. They typically are on similar landscape positions. In some areas the upper part of the subsoil has grayish mottles. These inclusions make up 5 to 10 percent of the map unit.

This Dubbs soil has moderate permeability. Surface runoff is slow, and the available water capacity is high. Organic matter content is moderately low, and natural fertility is high. Reaction ranges from very strongly acid to medium acid except where the surface horizon is limed. This soil responds well to the addition of plant nutrients. The surface layer is friable and easily tilled. Unprotected cultivated soils will puddle and crust after hard rains.

Nearly all areas of this soil are cultivated. It has good potential for cultivated crops, pasture, hay crops, and trees. It has good potential for sanitary facilities and as building sites.

This soil is suited to corn, soybeans, wheat, cotton, and grain sorghum as well as grasses and legumes for pasture and hay. There are no serious limitations for use of this soil as cropland. Management should provide a protective residue cover on the soil, however, to maintain or improve soil fertility, increase water intake, and reduce crusting.

Only small areas of this soil are used for pasture and hay. Grazing when the soil is too wet results in compaction and poor tilth. Restricted grazing during wet periods is necessary to maintain the pasture and soil in good condition.

This soil is suitable for building sites and sanitary facilities. Where lagoons are installed, it is necessary to seal the bottom of reservoirs to avoid seepage.

This soil is in capability class I; woodland suitability subclass 2o.

47—Dundee silt loam. This nearly level, somewhat poorly drained soil is on old natural levees or low terraces bordering former channels of the Mississippi River and its tributaries. Individual long, narrow bands and broad continuous areas range from 10 to more than 500 acres.

Typically, the surface layer is dark grayish brown silt loam about 8 inches thick. The subsoil is about 34 inches thick. The upper part is mottled, multicolored silt loam, the middle part is grayish brown silty clay loam, and the lower part is grayish brown, mottled silty clay loam. The substratum to a depth of 60 inches or more is brown and grayish brown silt loam.

Included with this soil in mapping are small areas of well drained Dubbs soil and poorly drained Jackport soils. Dubbs soils are in the higher areas of old natural levees or terraces, and Jackport soils are in the lower areas. In some areas the upper part of the subsoil has brown colors. These inclusions make up about 10 percent of this map unit.

This Dundee soil has moderately slow permeability. Runoff is slow in depressions and medium on natural levees. The available water capacity is high. This soil has a water table at about 18 to 24 inches beneath the surface during wet periods in winter and spring. Organic matter content is moderately low, and natural fertility is medium. Reaction ranges from very strongly acid to medium acid except where the surface layer has been limed. The surface layer is friable and easily tilled throughout a fairly wide range in moisture content. When tilled wet or exposed to hard rains, however, it tends to puddle and crust.

Nearly all of this soil is used for continuous cultivation. A few small areas remain in timber. It has good potential for most annual crops, hay, and pasture. It has good potential for bottom land tree production. It has fair potential for sanitary facilities and as building sites.

This soil is suited to soybeans, corn, grain sorghum, wheat, cotton, and legumes and grasses for hay and pasture. Wetness is the main management concern. It also collects runoff from surrounding higher elevations. Most surface water can be removed by a system of surface ditches or land grading. Tilling the soil when it is wet destroys its tilth and results in soil compaction. Managing crop residue to provide a protective surface cover helps maintain fertility, organic matter content, and tilth.

Only a small part of this map unit is used as pasture and hayland. Overgrazing or grazing when the soil is wet causes compaction and poor tilth. Proper grazing and restricted use during wet periods maintain pasture and hayland in good condition.

This soil is suited to trees, but only a few areas remain in woodland. Tree seedlings and cuttings survive and grow well if plant competition is controlled. This can be accomplished by site preparation or by spraying or girdling. There is a moderate hazard in using equipment to plant or harvest. Harvesting and planting should be planned to avoid wet periods.

This soil is in capability subclass IIw; woodland suitability subclass 2o.

48—Farrenburg fine sandy loam. This nearly level, moderately well drained soil is on slightly convex natural levees or terraces. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas vary widely in size and shape and range from about 10 to more than 500 acres.

Typically, the surface layer is brown fine sandy loam about 8 inches thick. The subsurface layer is about 24 inches of yellowish brown, mottled fine sandy loam. The subsoil extends to a depth of 60 inches or more. The upper part is dark yellowish brown, mottled sandy clay loam; the middle part is yellowish brown, mottled sandy clay loam; and the lower part is mottled, brown and light brownish gray sandy loam.

Included with this soil in mapping are small areas of well drained and somewhat excessively drained Broseley soils and somewhat poorly drained Lilbourn soils. Broseley soils are in the higher positions on the landscape, and Lilbourn soils are in the lower positions. These inclusions make up about 10 percent of this unit.

This Farrenburg soil has moderate permeability. Surface runoff is slow, and the available water capacity is high. A water table is at a depth of about 2 or 3 feet during wet periods. Natural fertility is medium, and organic matter content is moderately low. Reaction ranges from very strongly acid to slightly acid in the subsoil but ranges to neutral in the surface layer and subsurface layer because of local liming practices. The surface layer is very friable and easily tilled throughout a wide range in moisture content. A weak plowplan often forms at the base of the surface layer, particularly if it is tilled when wet or tilled consistently to the same depth.

Most areas of this soil are used for crops. It has good potential for cultivated crops, hay, pasture, and trees. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to soybeans, cotton, wheat, corn, grain sorghum, and grasses and legumes for pasture and hay. The subsoil is saturated during wet periods in winter and spring. The surface tends to be eroded by the wind in unprotected areas. Winter cover crops, wind stripcropping, and management that leaves protective amounts of residue on the surface help to prevent damage from erosion, maintain organic matter content, and increase water infiltration. Areas that are depressional and serve as local drains may temporarily pond runoff from adjoining higher landscapes but for only short periods following heavy rains. Excess surface water can ordinarily be removed by field ditches.

This soil is in capability subclass IIs; woodland suitability subclass 2o.

49—Jackport silty clay loam. This nearly level, poorly drained soil is on old natural levees or low terraces. Areas range from long narrow bands to broad flat areas and vary in size from 10 to more than 200 acres.

Typically, the surface layer is dark grayish brown silty clay loam about 5 inches thick. The subsoil is grayish brown clay about 53 inches thick. The substratum to a depth of 63 inches or more is dark brown and grayish brown, mottled silty clay.

Included with this soil in mapping are small areas of Adler, Dundee, and Falaya soils. Adler soils have less clay, are moderately well drained, and are in the higher areas. Dundee soils are somewhat poorly drained and are on the slightly higher parts of low terraces. Falaya soils have less clay, are somewhat poorly drained, and are in the slightly higher areas.

This Jackport soil has very slow permeability. Surface runoff is slow, and the available water capacity is moderate. Shrinking and swelling is high. Natural fertility is medium, and the organic matter content is low. Reaction is very strongly acid or strongly acid in the subsoil and varies widely in the surface layer as a result of local liming practices. The substratum ranges from slightly acid to mildly alkaline. The surface layer is firm and difficult to till. Root development is restricted because of poor aeration.

Most areas of this soil are cultivated, but a few areas remain in timber. It has fair potential for cultivated crops, hay, pasture, and trees. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to soybeans, grain sorghum, small grains, and grass for hay and pasture. Row crop varieties that require a short growing season grow well when the soil is wet during spring and fall. Tillage is difficult and careful observation is required to determine optimum moisture content for seedbed preparation. Drainage by means of surface drains and land grading and the timely scheduling of tillage are important factors in the success of these crops.

Pasture and hay mixtures that contain water-tolerant varieties grow well. Timely deferment of grazing during wet periods will help to keep pastures in good condition.

This soil is suited to water-tolerant trees. Cottonwood, green ash, sweetgum, water oak, and willow oak are the dominant species. Seedling mortality is a moderate problem which can be overcome by surface drainage. Wetness is a severe limitation for operation of equipment. This can be overcome to some extent by the timely use of equipment when the surface layer is firm and dry.

This soil is generally unsuited to sanitary facilities and building sites. Wetness, shrinking and swelling, and low strength are the primary limitations.

This soil is in capability subclass IIIw; woodland suitability subclass 2w.

50—Lilbourn fine sandy loam. This nearly level, somewhat poorly drained soil is on low ridges and terraces and along slightly concave drainageways. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are irregular in shape and range from about 10 to several thousand acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 9 inches thick. The subsurface layer is very dark grayish brown fine sandy loam about 6 inches thick. A transitional layer is very dark grayish brown and grayish brown, mottled fine sandy loam about 10 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is dark grayish brown and grayish brown, mottled fine sandy loam; the middle part is grayish brown, mottled silt loam; and the lower part is grayish brown and brown fine sandy loam.

Included with this soil in mapping are small areas of moderately well drained Clana soils, somewhat poorly drained Dundee soils, and excessively drained Malden soils. Clana and Malden soils are higher on the landscape and are more sandy. Dundee soils are at about the same elevation but contain more clay.

This Lilbourn soil has moderate permeability. Runoff is slow, and the available water capacity is moderate. This soil has a water table at a depth of about 12 to 24 inches during wet periods. Runoff from adjacent higher areas results in flooding some areas. Natural fertility is medium, and the organic matter content is moderately low. The reaction ranges from medium acid to neutral in the surface layer and strongly acid to neutral in the substratum. The surface layer is friable and easily tilled throughout a fairly wide range in moisture content.

Most areas of this soil are used for crops. The soil has good potential for hay and pasture and for cultivated crops and trees. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to soybeans, cotton, corn, wheat, grain sorghum, grasses, and hay crops. Small grains and other cool-season crops are subject to some stand reduction due to wetness. Wetness is the major limitation for most uses. A system of drainage ditches or land grading will help eliminate surface water. Some crop residue should be kept on the surface to provide a protective cover and the remainder mixed into the soil to help maintain good tilth and the organic matter content. This also helps control wind erosion during winter and spring.

When this soil is used for pasture, overgrazing and grazing when the soil is wet causes surface compaction and poor tilth. Pasture rotation, proper stocking, and restricted use during wet periods help maintain the pasture and soil in good condition.

This soil is in capability subclass IIw; woodland suitability subclass 3o.

51A—Malden loamy find sand, 0 to 3 percent slopes. This nearly level, excessively drained soil is on broad, convex, sandy natural levees. Individual plots range from small areas of 5 acres to broad, regular shaped areas of 800 acres or more.

Typically, the surface layer is dark brown loamy fine sand about 9 inches thick. The subsoil is brown loamy fine sand about 45 inches thick. The substratum to a depth of 66 inches or more is dark yellowish brown fine sand.

Included with this soil in mapping are small areas of well drained Bosket, Dubbs, and Towosahgy soils, moderately well drained Clana soils, and somewhat poorly drained Lilbourn soils. These inclusions make up about 10 percent of this map unit.

This Malden soil has rapid permeability. Surface runoff is slow, and the available water capacity is low. The organic matter content is moderately low. Natural fertility is medium, but response to additions of fertilizer and lime is good. Reaction ranges from strongly acid to slightly acid throughout except where the surface layer has been limed. The surface layer is very friable and is loose when dry. It is easily tilled throughout a wide range in moisture content.

Most areas of this soil are used for crops. It has fair potential for cultivated crops, pasture, hay, and special crops such as watermelons and cantaloups. It has fair potential for trees.

This soil is suited to cotton, soybeans, corn, peas, small grains, grasses and legumes for pasture and hay, watermelons, and cantaloups. Where it is used for cultivated crops, there is a hazard of wind erosion. Most damage is caused to young tender plants by the moving sand particles. The use of winter cover crops, wind stripcropping, and field windbreaks helps control wind erosion. This soil is droughty during extended dry periods, and areas that have been land graded receive supplemental irrigation during dry periods. Many areas are irrigated by overhead sprinkler systems. Residue management that provides surface protection also reduces wind erosion and improves fertility.

The use of this soil for pasture and hay is limited but is a very effective method of controlling wind erosion. Overgrazing or grazing during extended dry periods often results in reduction of the stand. Proper stocking, pasture rotation, timely deferment of grazing, or irrigation are necessary to keep the pasture in good condition.

This soil is suited to trees, but few areas remain in woodland. Tree seedlings and cuttings grow well once established. Seedling mortality is likely in extended dry periods or where erosion is not controlled. Cover crops and wind stripcropping help to protect young seedlings from wind erosion.

This soil is suitable for building sites, but it is too sandy for most sanitary facilities. Septic tank absorption fields may pollute underground water. Excessive seepage from sewage lagoons can be prevented by sealing the bottoms.

This soil is in capability subclass IIIs; woodland suitability subclass 3s.

52B—Memphis silt loam, 2 to 5 percent slopes. This gently sloping, well drained soil is on convex ridgetops of the uplands. Individual areas are long and narrow and range from 10 to more than 60 acres.

Typically, the surface layer is dark brown silt loam about 9 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is brown silty clay loam, and the lower part is brown, mottled silty clay loam. In some places the surface has eroded and depth to the subsoil is shallower.

Included with this soil in mapping are fringe areas where slope is 5 to 9 percent. Also included are places where the lower part of the subsoil has gray mottles.

This Memphis soil has moderate permeability. Surface runoff is medium, and the available water capacity is high. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from medium acid to very strongly acid in the subsoil but is often higher in the surface layer as a result of local liming practices. This soil responds well to the addition of fertilizer and lime. The surface layer is friable and easily tilled throughout a wide range in moisture content. If tilled when wet, it tends to compact, puddle, and crust.

Most areas of this soil are used for pasture, crops, and orchards. It has good potential for cultivated crops, hay, pasture, orchards, and trees. It has fair potential for most sanitary facilities and as building sites.

This soil is suited to orchards, soybeans, wheat, corn, grain sorghum, and grasses and legumes for hay and pasture. It is suited to orchards because its location and position on the landscape allow for desirable air drainage. Where it is used for cultivated crops or orchards, there is a hazard of erosion. Terraces, conservation tillage, cover crops, and grassed waterways help prevent excessive soil loss. Returning crop residue to the soil provides protective cover, maintains or improves fertility, reduces compaction and crusting, and aids water infiltration. Water for spraying is easily provided by ponds or lakes built on this and adjacent soils.

The use of this soil for pasture and hay is an effective method of controlling erosion. Overgrazing or grazing when the soil is wet results in surface compaction, excessive runoff, and poor tilth. Proper stocking and restricted use during wet periods are necessary to maintain the soil and pasture in good condition. Water for livestock is easily provided by contruction of ponds.

This soil is suited to trees, and a few areas remain in woodland. Tree seedlings and cuttings survive and grow well where competing vegetation is controlled. This can be accomplished by site preparation or by spraying, cutting, or girdling.

This soil is suitable for sanitary facilities and building sites if proper design and installation procedures are used. Although permeability is moderate, the movement of effluent is slow enough to cause a moderate limitation for septic tank absorption fields. Increasing the length of the filter field helps to overcome this limitation. If sewage lagoons are installed, the bottoms can be treated with slowly permeable material to prevent seepage. Local roads and streets can be strengthened by adding extra base material.

This soil is in capability subclass IIe; woodland suitability subclass 2o.

52C—Memphis silt loam, 5 to 9 percent slopes. This moderately sloping, well drained soil is on convex ridgetops of the uplands. Individual areas are long and narrow and range from 10 to more than 200 acres.

Typically, the surface layer is dark brown silt loam about 3 inches thick and the subsurface layer is dark yellowish brown silt loam about 4 inches thick. The subsoil extends to a depth of 60 inches or more. The upper part is yellowish brown silt loam, the middle part is yellowish brown silty clay loam, and the lower part is yellowish brown and brown silty clay loam. In some places the surface layer has eroded and the depth to the subsoil is shallower.

Included with this soil in mapping are small fringe areas of this soil where slope is 2 to 5 percent and 9 to 14 percent. These inclusions make up about 5 percent of this unit.

This Memphis soil has moderate permeability. Surface runoff is medium, and the available water capacity is high. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from medium acid to very strongly acid in the subsoil but is often higher in the surface layer as a result of local liming practices. This soil responds well to the addition of fertilizer and lime. The surface layer is friable and easily tilled thoughout a wide range in moisture content. If tilled when wet, it tends to compact, puddle, and crust.

Most areas of this soil are used for pasture, cropland, and orchards. It has good potential for cultivated crops, hay, pasture, orchards, and trees. It has fair potential for most sanitary facilities and as building sites.

This soil is suited to orchards, soybeans, wheat, corn, grain sorghum, and grasses and legumes for hay and pasture. (fig. 11) It is suited to orchards because its location and position on the landscape allows for air drainage. Where this soil is used for cultivated crops or orchards there is a hazard of erosion. Terraces, conservation tillage, cover crops, and grassed waterways help prevent excessive soil loss. Residue management that provides protective cover on the surface maintains or improves fertility, reduces compaction and crusting, and aids water infiltration. Water for spraying is easily provided by ponds or lakes built on this and adjacent soils.

The use of this soil for pasture and hay is an effective method of controlling erosion. Overgrazing or grazing when the soil is wet results in surface compaction, excessive runoff, and poor tilth. Proper stocking and restricted use during wet periods are necessary to maintain the soil and pasture in good condition. Water for livestock is easily provided by construction of ponds.

This soil is suited to trees, and a few areas remain in woodland. Tree seedlings and cuttings survive and grow well where competing vegetation is controlled. This can be accomplished by site preparation or by spraying, cutting, or girdling.

This soil is suitable for sanitary facilities and building sites if proper design and installation procedures are used. Although permeability is moderate, the movement of effluent is slow enough to cause a moderate limitation for septic tank absorption fields. Increasing the length of the filter field helps to overcome this limitation. If sewage lagoons are installed, the bottoms should be treated with slowly permeable material to prevent seepage. Local roads and streets can be strengthened by adding extra base material.

This soil is in capability subclass IIIe; woodland suitability subclass 2o.

52D3—Memphis silt loam, 9 to 14 percent slopes, severely eroded. This strongly sloping, well drained soil is on side slopes of the uplands. Individual areas are irregular in shape and range from 40 to more than 1000 acres.

Typically, the surface layer is dark yellowish brown silt loam about 4 inches thick. The subsoil is about 44 inches thick. The upper part is brown, friable silt loam, and the lower part is dark yellowish brown, firm silty clay loam. The substratum is yellowish brown silt loam to a depth of 60 inches or more. In some places the surface layer is not eroded and it is thicker. In other severely eroded areas the surface layer is silty clay loam, and it is dissected by small rills.

Included with this soil in mapping are narrow bottom land areas of Adler soils. Small areas where slopes are from 14 to 40 percent and 5 to 9 percent are also included. In some areas where the uplands break to the bottom lands, there are outcrops of limestone bedrock or pockets of sand and gravel. These inclusions make up about 10 percent of this unit.

This Memphis soil has moderate permeability. Surface runoff is medium or rapid, and the available water capacity is high. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from medium acid to very strongly acid in the subsoil but varies widely in the surface layer as a result of local liming practices. This soil responds well to additions of fertilizer and lime. In most areas the surface

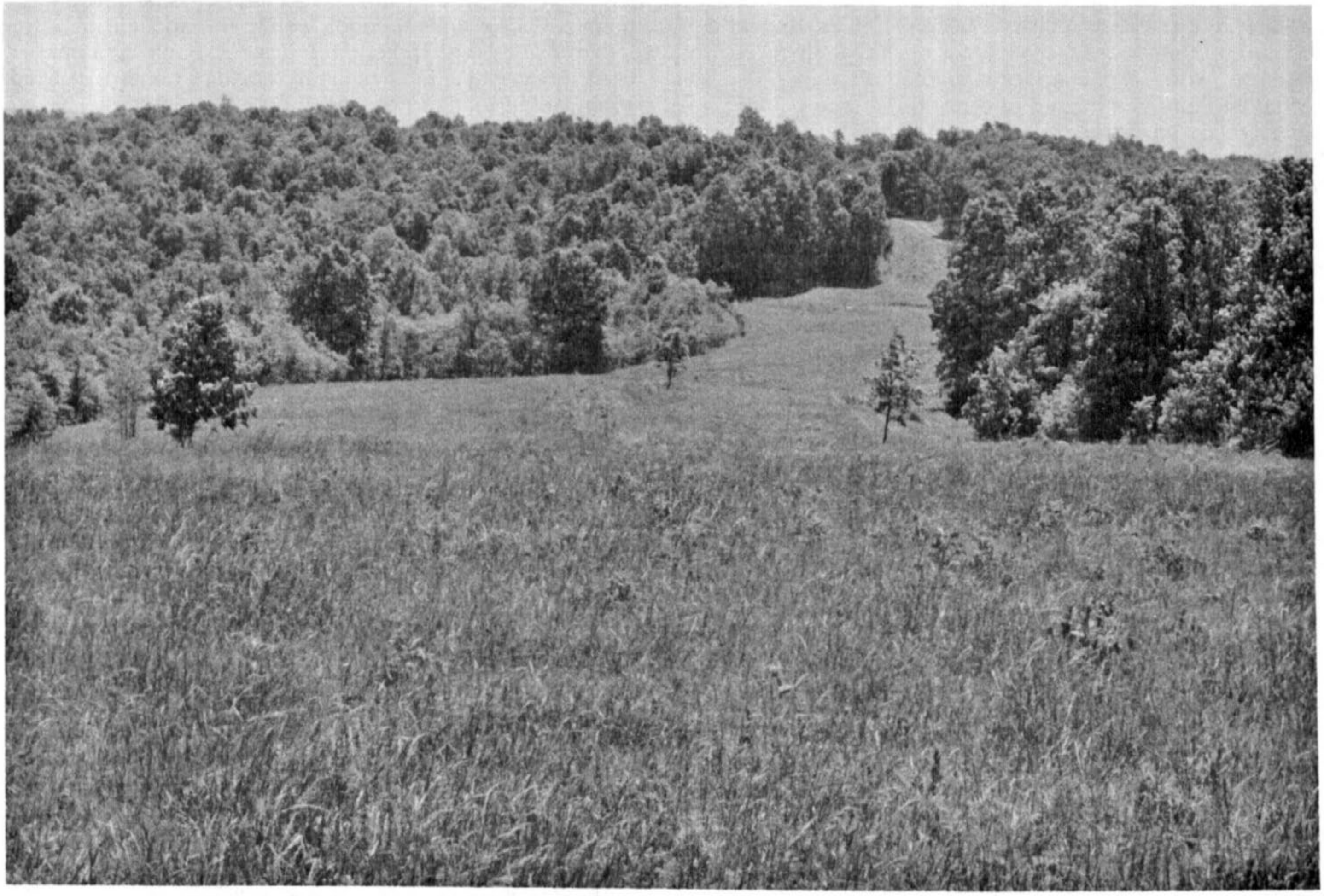

Figure 11.—Pasture or hay controls erosion on a narrow ridge of Memphis silt loam, 5 to 9 percent slopes.

layer forms clods if tilled when dry or puddles and crusts if tilled when wet. The less eroded areas are fairly easily tilled throughout a wide range in moisture content.

Most areas of this soil are used for pasture, cropland, and orchards. A few very severely eroded areas have been abandoned. This soil has fair potential for cultivated crops and good potential for hay, pasture, orchards, and trees. It has fair potential for most sanitary facilities and as building sites.

This soil is suited to occasional cultivation. It is also suited to orchard crops such as peaches, nectarines, and apples. The location and position of the soil on the landscape allow for air drainage. Areas that are in orchards erode if the surface is left unprotected. Where the soil is used for cultivated crops or orchards there is a severe hazard of erosion. Conservation tillage, cover crops, terraces, and grassed waterways prevent excessive soil loss. Most areas are too irregular for efficient use of parallel terraces. Managing crop residue to maintain a protective cover and mixing the remainder into the soil improves fertility, reduces compaction and crusting, and aids infiltration.

The use of this soil for pasture and hay is an effective method of controlling erosion. Overgrazing or grazing when the soil is wet causes surface compaction, excessive runoff, and poor tilth. Using equipment when the soil is wet has the same effect. Proper stocking and restricted use during wet periods are necessary to maintain the soil and pasture in good condition. Water for livestock is easily provided by construction of ponds.

This soil is suited to trees, and many areas remain in woodland. Tree cuttings and seedlings survive and grow well where competing vegetation is controlled. This can be accomplished by site preparation or by spraying, cutting, or girdling.

This soil is suitable for sanitary facilities and building sites if proper design and installation procedures are used. Slow absorption of effluent and slope are limitations for septic tank filter fields, sewage lagoons, and building sites. Areas used for these purposes can be graded to modify the slope. Septic tank absorption fields can be lengthened to help overcome slow permeability. If sewage lagoons are built, the bottoms can be treated with slowly permeable material to prevent seepage. Local roads and streets can be strengthened by adding extra base material.

This soil is in capability subclass VIe; woodland suitability subclass 2o.

52E3—Memphis silt loam, 14 to 40 percent slopes, severely eroded. This moderately steep to very steep, well drained soil is on side slopes of the uplands. Individual areas are long and narrow paralleling the ridgetops, and they range from 40 to more than 400 acres.

Typically, the surface layer is very dark grayish brown silt loam about 3 inches thick. The subsoil is about 37 inches thick. The upper part is dark yellowish brown silt loam and firm silty clay loam, and the lower part is brown silty clay loam. The substratum is brown silt loam to a depth of 60 inches or more. In some areas the surface layer is silty clay loam and is dissected by small rills and gullies.

Included with this soil in mapping are narrow bottom land areas of Adler soils. In small areas there are slopes that are more than 40 percent and slopes of 9 to 14 percent. In some areas where the uplands break to the bottom land, there are outcrops of limestone bedrock or pockets of sand and gravel. These inclusions make up about 10 percent of this unit.

This Memphis soil has moderate permeability. Surface runoff is rapid, and the available water capacity is high. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from medium acid to very strongly acid in the subsoil, but varies widely in the surface layer as a result of local liming practices. This soil responds well to additions of fertilizer and lime. The less eroded areas are fairly easily tilled throughout a wide range in moisture content. The more eroded areas, however, have more clay in the surface layer, which forms clods when tilled dry or puddles and crusts when tilled too wet. The surface layer also puddles and crusts after rains.

Most areas of this soil are used for pasture, woodland, or orchards. A few very severely eroded areas have been abondoned. It has good potential for hay, pasture, orchards, and trees. It has poor potential for most sanitary facilities and as building sites.

This soil is generally unsuited to crops because of slope. Rills and gullies form in areas that are cultivated.

The use of this soil for pasture and hay is an effective method of controlling erosion. Overgrazing or grazing when the soil is wet causes surface compaction, excessive runoff, and poor tilth. Diversions and grassed waterways are effective in controlling runoff. Proper stocking and restricted use during wet periods keep the soil and pasture in good condition. Water for livestock is easily provided by construction of ponds.

This soil is also used for orchard crops such as peaches, nectarines, and apples and is well located on the landscape to allow for air drainage. Areas that are in orchards will erode unless a protective cover is maintained. Winter cover crops or managing residue on the soil surface are effective in controlling erosion. Planting on the contour is also effective in reducing erosion. Grassed waterways help to control erosion where runoff has gathered into channels. Water for spraying is accessible from ponds or lakes built on this and adjacent soils.

This soil is suited to trees, and many areas remain in woodland. The use of this soil for woodland is effective in controlling erosion. Tree seeds, cuttings, and seedlings survive and grow well where competing vegetation is controlled. This can be accomplished by site preparation or by spraying, cutting, or girdling. Because the slope is steep there is a moderate hazard of erosion and equipment limitations that should be considered when planting and harvesting.

This soil is generally unsuitable for sanitary facilities and building site because of slope. Coastal plains sand and gravel are mined from areas underlying this soil.

This soil is in capability subclass VIIe; woodland suitability subclass 2r.

53—Mhoon silt loam. This nearly level, poorly drained soil is along low lying drainageways and depressions on the Mississippi River flood plain. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas range from long, irregular bands to broad, wide areas and vary from 5 to more than 300 acres.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsoil is dark gray and gray, mottled silty clay loam about 28 inches thick. The substratum to a depth of 60 inches or more is light gray, mottled silt loam.

Included with this soil in mapping are areas of somewhat poorly drained Commerce soils and poorly drained Sharkey soils. Commerce soils occupy the slightly higher areas, and Sharkey soils are in similar areas. Also included are a few areas that flood occasionally. These inclusions make up about 7 percent of this unit.

This Mhoon soil has slow permeability. Surface runoff is slow, and the available water capacity is high. The water table fluctuates and is near the surface in late winter and spring. Natural fertility is high, and the organic matter content is moderately low. Reaction of the subsoil ranges from slightly acid to moderately alkaline. The surface layer is friable and easily tilled.

Nearly all areas of this soil are intensively farmed. It has good potential for cultivated crops, hay, pasture, or trees. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to soybeans, corn, small grains, and grasses and legumes for hay and pasture. Surface drainage is needed and can be accomplished by land grading and drainage ditches. Tillage is not generally a problem but should be delayed in the spring until the soil has had time to dry out. Returning crop residue to the soil helps to maintain fertility and improves permeability and tilth.

This soil is suitable for trees, and a few areas remain in timber. Water-tolerant species grow well. Wetness is a severe limitation for use of equipment. This limitation can be overcome to some extent by the timely use of equipment when the surface is dry.

This soil is in capability subclass IIw; woodland suitability subclass 1w.

54—Reelfoot silt loam. This nearly level, somewhat poorly drained soil is on the lower parts of old natural levees. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas range from long, narrow bands of 50 to 100 acres to broad, regular areas of 100 to more than 800 acres.

Typically, the surface layer and subsurface layer are very dark grayish brown silt loam which, combined, are about 16 inches thick. The subsoil is about 16 inches thick. The upper part is dark grayish brown, mottled silty clay loam, and the lower part is dark grayish brown, mottled silt loam. The substratum to a depth of 60 inches or more is dark grayish brown and grayish brown, mottled silt loam.

Included with this soil in mapping are small areas of somewhat poorly drained Commerce soils, moderately well drained Tiptonville soils, and poorly drained Roellen, Sharkey, and Tunica soils. The Commerce and Reelfoot soils are on a similar landscape. Tiptonville soils are on higher parts of old natural levees. Roellen, Sharkey, and Tunica soils are in channels or basins surrounding and within old natural levees. Also included are areas that have thin sandy strata in the profile. These inclusions make up about 15 percent of this unit.

This Reelfoot soil has moderate permeability. Surface runoff is slow, and the available water capacity is very high. During late winter and early spring the water table is within 1.5 to 2.5 feet of the surface. Natural fertility is high, and the organic matter content is moderate. Reaction ranges from medium acid to neutral in the surface layer and strongly acid to slightly acid in the subsoil and substratum. The surface layer is friable and easy to till throughout a fairly wide range in moisture content.

Most of this soil is intensively cultivated. It has good potential for row crops, small grains, pasture, and woodland. It has poor potential for sanitary facilities and as building sites.

This soil is suited to corn, soybeans, small grains, and grass for hay. Wetness is the main management concern. Most surface water can be removed by a system of surface ditches or land grading. Tilling the soil when it is wet destroys tilth and results in compaction. Managing crop residue to provide a protective surface cover helps to maintain fertility and tilth.

Only a few areas of soil are used for pasture and hay. Overgrazing or grazing when the soil is wet causes compaction and poor tilth. Proper grazing and restricted use when the soil is wet are necessary to maintain pasture and hay in good condition.

This soil is suited to trees, and a few areas remain in woodland. Tree seedlings and cuttings survive and grow well if plant competition is controlled. This can be accomplished by site preparation or by spraying or girdling.

This soil is in capability subclass IIw; woodland suitability subclass 2o.

55—Roellen silty clay. This level and nearly level, poorly drained soil is along concave, natural drainageways, channels, and basins. These positions are adjacent to or surrounded by the higher natural levees. This soil is subject to occasional flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are generally long and narrow and range from about 10 to more than 400 acres.

Typically the surface layer and subsurface layer are very dark grayish brown silty clay and, combined, are about 12 inches thick. The subsoil is about 42 inches thick. It is dark gray and dark grayish brown, mottled silty clay. The substratum extends to a depth of 60 inches or more. It is dark grayish brown, mottled silty clay loam. In places the soil has thin layers that consist mostly of iron and manganese concretions.

Included with this soil in mapping are small areas of Cairo, Commerce, Reelfoot, Sharkey, and Sikeston soils. Cairo soils are in old stream channels and have sandy layers at a depth of 20 to 40 inches. Commerce and Reelfoot soils are somewhat poorly drained and are on the higher positions. Sharkey and Sikeston soils also are in stream channels and are intermingled with Roellen soils. Sharkey soils contain more clay and Sikeston soils have less clay and more sand than Roellen soils. Areas of this soil that are between the levee and the Mississippi River are subject to frequent flooding. Also included are small sand spots that are generally less than one acre. These inclusions make up about 12 to 14 percent of this unit.

This Roellen soil has slow permeability. Surface runoff is slow, and the available water capacity is moderate. This soil shrinks and cracks when dry and swells when wet. Natural fertility is high, and organic matter content is moderate. Reaction is medium acid to mildly alkaline in the subsoil but varies widely in the surface layer due to liming practices. The seasonal high water table is within 1 foot of the surface. The surface layer is firm and can be worked only in a narrow moisture range. When wet it is sticky and difficult to till, when dry it is hard and cloddy. Tillage should be carried out far enough in advance to allow freezing and thawing or alternate wetting and drying to break up clods. Since much of this soil is along drainageways it is subject to flooding. These areas function as outlets for drainage of adjacent higher ridges. Therefore, the severity of flooding is determined by the amount of runoff from these higher ridges.

Most areas of this soil are used for row crops. It has fair potential for cultivated crops, pasture, and hay, and good potential for trees. It has poor potential for sanitary facilities and as building sites.

This soil is suited to soybeans, grain sorghum, cotton, wheat, and grasses and legumes for pasture and hay when adequately drained. Excess surface water can generally be removed by a system of field ditches. Land grading not only aids drainage but fills potholes and provides a suitable grade for supplemental irrigation. This soil holds large amounts of water, but only part of it is available to plants. Managing crop residue to leave a protective cover on the surface and mixing the remainder into the surface soil helps to improve fertility and tilth.

There is little use of this soil for pasture or hay. Stands of perennial grasses and legumes are generally reduced each winter and spring due to wetness. Species should be selected that can withstand some wetness. Overgrazing or grazing when the soil is wet causes compaction and puddling and crusting of the surface. Proper stocking and restricted use during wet periods are necessary to maintain pasture and soil in good condition.

This soil is suited to selected bottom land trees, and a few areas remain in woodland. Tree cuttings and seedlings survive and grow well where competing vegetation is controlled. This can be accomplished by site preparation or by spraying. The wetness of this soil is a severe limitation for harvesting trees. Unless drainage is provided, harvesting should be delayed until an extended dry period.

This soil is in capability subclass IIIw; woodland suitability subclass 2w.

56E—Saffell soils, 20 to 45 percent slopes. This steep and very steep, well drained soil is on side slopes and toe slopes of the extreme southeastern edge of the uplands in Scott County. Areas range from about 80 to more than 400 acres.

Typically, the surface layer is brown, gravelly loamy sand about 3 inches thick. The subsoil is about 51 inches thick. It is red very gravelly or gravelly loam. The substratum is red gravelly sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are a few narrow ridgetops of Memphis soils. Some areas have loess soil material that ranges from a few inches to 3 or 4 feet thick. Also included are areas that are sandy or clayey throughout the profile and have little or no gravel. Areas adjacent to this soil have varying amounts of gravel in the profile and on the surface. These inclusions make up about 15 percent of this map unit.

This Saffell soil has moderate permeability. Surface runoff is medium to rapid, and the available water capacity is low. Organic matter content and natural fertility are low. Reaction is very strongly acid or strongly acid throughout the soil. Because this soil is steep and very steep, the surface horizon has been thinned by severe erosion.

Most areas of this soil are being used as a source of gravel or fill material. Some areas remain in trees, and a few of the ridgetops are in pasture. This soil has poor potential for cultivated crops and pasture and for most sanitary facilities and as building sites.

The steep slopes cause severe concerns in management for crops or pasture. This soil is suited to woodland and woodland wildlife habitat. Tree growth is somewhat low because the soil is droughty. Planting trees, however, is an effective way to control erosion.

This soil is generally unsuitable for sanitary facilities and building sites because of slope. This soil is a good source for roadfill material, which is somewhat difficult to obtain because of the steep slopes.

This soil is in capability subclass VIIe; woodland suitability subclass 4f.

57B—Scotco sand, 0 to 4 percent slopes. This gently sloping, excessively drained soil is on broad old natural levees. Some areas have a dunelike appearance. Areas range from about 40 to several thousand acres.

Typically, the surface layer is very dark grayish brown coarse sand about 9 inches thick. The subsoil is about 23 inches thick. The upper part is dark yellowish brown coarse sand, and the lower part is yellowish brown coarse sand. The substratum to a depth of 60 inches or more is yellowish brown sand. In some areas the surface is sandy loam.

Included with this soil in mapping are small areas of Bosket, Clana, and Malden soils. Bosket soils have more clay and less sand. Clana soils have gray mottles within 40 inches of the surface and are on the lower positions on the landscape. Malden soils have slightly smoother slopes than Scotco soil and consist of finer sand. These inclusions make up 8 to 10 percent of this unit.

This Scotco soil has rapid permeability. Runoff is slow, and the available water capacity is low. Natural fertility and organic matter content are low. Reaction ranges from medium acid to neutral throughout the profile. The surface layer is very friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are cropped. A few areas are in timber, are idle, or are covered with brush and weeds. This soil has poor potential for row crops or pasture unless it is irrigated. It has fair potential for woodland when used to provide cover for wildlife. It has poor potential for most sanitary facilities and as building sites.

This soil is generally unsuited to cultivated crops unless irrigation is used. It is very droughty during the summer. Sprinkler irrigation systems are best suited to this soil because they can be controlled more effectively in order to grow crops. When cultivated crops are grown there is also a hazard of wind erosion. (fig. 12). The use of winter cover crops, wind stripcropping and field windbreaks help control wind erosion. Small areas of this soil are suited to specialty crops if close attention is given to the timely application of water. The addition of organic matter reduces wind erosion and improves fertility.

This soil is suited to native grasses that are drought-tolerant. This use is a very effective method of controlling wind erosion. Overgrazing or grazing during extended dry periods reduces the stand. Proper stocking, pasture rotation, timely deferment of grazing as well as irrigation are necessary to keep the pasture in good condition.

This soil is suited to wildlife cover, small woody areas are relatively common. They are an effective way to help control erosion. Seedling mortality is severe. Adequate watering and protection from wind erosion is needed until seedlings and cuttings are established. Cover crops and wind stripcropping help to protect young seedlings against wind erosion. Tree growth will be slow because this soil is droughty.

This soil is suitable for openland and woodland wildlife habitat. Care must be taken in establishing plants for wildlife habitat. Protection from wind erosion is essential until plants are established. Plants that are drought-tolerant should be planted when possible.

This soil is suited to building sites but there are severe limitations for sanitary facilities. If sewage lagoons are to be constructed, suitable fill must be used to seal the bottom. Septic tank filter fields may contaminate underground water supplies.

This soil is in capability subclass IVs; woodland suitability subclass 3s.

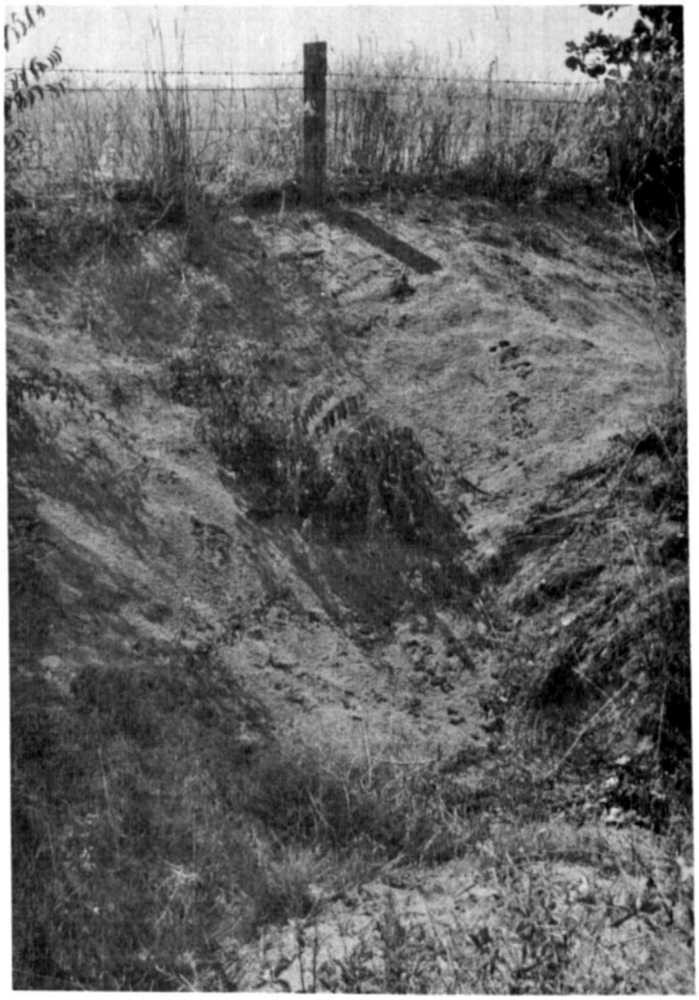

Figure 12.—Drifted sand covers half of the fence posts in an area of Scotco sand, 0 to 4 percent slopes.

57C—Scotco sand, 4 to 12 percent slopes. This moderately sloping, excessively drained soil is on hummocky sand ridges of natural levees. They are on low hills as much as 30 feet above the adjacent lowlands. Areas range from about 20 to more than 200 acres.

Typically, the surface layer is very dark grayish brown sand about 6 inches thick. The subsoil is dark yellowish brown sand about 36 inches thick. The substratum to a depth of 60 inches or more is yellowish brown sand.

Included with this soil in mapping the lesser slopes are a few small areas of Clana soils. This soil is on lower positions than Scotco soils. Also included are a few blowout spots and short, steep slopes of 30 percent or more. These inclusions make up about 5 percent of this unit.

This Scotco soil has rapid permeability. Runoff is slow, and the available water capacity is low. Natural fertility and organic matter content are low. Reaction ranges from medium acid to neutral throughout the profile. The surface layer is very friable and easily tilled throughout a wide range in moisture content.

Most areas of this soil are cultivated. Some areas are in timber, are idle or are covered with brush and weeds, and some areas occur as blowout spots. This soil has poor potential for crops and pasture. It has fair potential for woody areas for wildlife habitat. It has poor potential for most sanitary facilities and as building sites.

This soil is generally unsuited to cultivated crops. It is very droughty during the summer. Some type of sprinkler irrigation should be used to maintain plant growth. The steeper areas are very difficult to irrigate.

The use of this soil for native pasture is an effective way to help control wind erosion. Grazing during dry periods should be limited. Proper stocking and pasture rotation are necessary for plant survival.

This soil is suited to small woody areas, and these areas are common. They are an effective way to help control erosion. Seedling mortality is severe. Adequate watering and protection from wind erosion are needed until seedlings and cuttings are established. Cover crops and wind stripcropping help to protect young seedlings from wind erosion. Tree growth will be slow because this soil is droughty.

This soil is suited to building sites, but there are severe limitations for sanitary facilities. If sewage lagoons are to be constructed, suitable fill material must be used to seal the bottom. Septic tank filter fields may contaminate underground water supplies.

This soil is in capability subclass VIs; woodland suitability subclass 3s.

58—Sharkey silty clay. This nearly level, poorly drained soil is on broad flats or in concave depressions or basins. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are generally elongated and somewhat irregular in shape and range from about 10 to several thousand acres.

Typically, the surface layer is very dark grayish brown silty clay about 7 inches thick. The subsoil is about 47 inches thick. It is mottled dark gray and gray mottled clay. The substratum is gray, mottled clay to a depth of 72 inches or more. In some areas the dark surface layer is thicker and in other areas the substratum has less clay.

Included with this soil in mapping are areas of acid Alligator and Jackport soils on low terraces. Areas of this soil that occur between the levee and the Mississippi River are subject to frequent flooding. In some areas sandy spots range from one-tenth acre to 2 acres and are underlain by clay or silty clay material. These inclusions make up about 5 to 10 percent of this unit.

This Sharkey soil has very slow permeability. Surface runoff is slow or very slow, and the available water capacity is moderate. This soil shrinks and cracks when dry but swells when wet. Natural fertility is high, and the organic matter content is moderate. Reaction ranges from medium acid to moderately alkaline throughout the soil. It is difficult to till because of the high clay content of the surface layer. This soil is wetter for longer periods after rains than most adjacent soils, and this generally delays field operations. It accumulates and ponds runoff from adjacent areas and is generally wet during the winter and spring.

Most areas of this soil are cultivated. It has good potential for soybeans, cotton, grain sorghum, and rice. Soybeans and grain sorghum, however, are the main crops. It has good potential for summer annuals, pasture, hay, and trees. It has fair potential for most cool-season crops. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to soybeans, cotton, small grains, and grasses where drained. A system of field ditches generally removes excess surface water. Land grading aids drainage and fills potholes. This soil holds large amounts of water, but only a moderate amount is available to plants. Using conservation tillage to leave a protective cover of crop residue on the surface and mixing part of the crop residue into the surface soil improves tilth and increases water infiltration.

When this soil is used for pasture, there is a hazard of plant damage by livestock during wet periods. Some compaction of the surface soil also occurs. Controlled grazing, restricted use during wet periods, and pasture rotation are used in proper pasture management.

This soil is suited to trees, and a few areas remain in native hardwood. Tree seedlings and cuttings have difficulty getting established because of wetness. Operation of planting or harvesting equipment is difficult during wet periods. Providing drainage and harvesting in dry periods are alternatives.

This soil is in capability subclass IIIw; woodland suitability subclass 2w.

59—Sharkey silty clay loam. This nearly level, poorly drained soil is on narrow, low ridges and in broad, flat to slightly convex areas. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are large and generally irregular in shape, ranging from about 10 to more than 600 acres.

Typically, the surface layer is about 10 inches thick. The upper part is very dark gray silty clay loam about 4 inches thick, and the lower part is mixed, dark gray and dark grayish brown silty clay loam. The subsoil is about 42 inches thick. The upper part is dark gray and dark grayish brown, mottled silty clay; the middle part is gray, mottled clay; and the lower part is gray, mottled silty clay. The substratum to 60 inches or more is gray, mottled silty clay loam. In some places the surface layer is 20 inches deep.

Included with this soil in mapping are small areas of the less clayey Roellen and Tunica soils on the slightly higher positions and areas of Sharkey silty clay on the lower lying positions. Also, some areas of the acid Alligator and Jackport soils are on low old terraces. Areas of this soil that are between the levee and the Mississippi River are subject to frequent flooding. Also included are sand spots that range in size from one-tenth acre to 2 acres. These sand spots are underlain by silty clay loam, silty clay, or clay material at a depth of 20 to 40 inches. These inclusions make up about 10 to 15 percent of this unit.

This Sharkey soil has very slow permeability. Surface runoff is slow or very slow, and the available water capacity is moderate. This soil shrinks and cracks when dry but swells when wet. The surface of this soil has moderate shrink-swell potential. Natural fertility is high, and the organic matter content is moderate. Reaction ranges from medium acid to moderately alkaline throughout the soil. This soil is difficult to till, and in low places the soil remains wet for long periods during spring and winter.

Most areas of this soil are cultivated. It has good potential for soybeans, cotton, small grains, grain sorghum, and rice. Soybeans and grain sorghum are the main crops. It has good potential for summer annuals, pasture, hay, and trees. It has fair potential for most cool-season crops. It has poor potential for most sanitary facilities and as building sites.

This soil is suited to soybeans, cotton, small grains, and grasses where drained. A system of field ditches generally removes excess water. Land grading aids drainage and eliminates potholes. This soil holds large amounts of water, but only a moderate amount is available to plants. Keeping a protective cover of crop residue on the surface and mixing the remainder into the surface soil improves infiltration and soil tilth.

Where pasture grasses are grown there is a hazard of crop damage by livestock during wet periods. Some compaction of the surface soil is likely. Controlled grazing, restricted use during wet periods, and pasture rotation help to keep the pasture and soil in good condition.

This soil is suited to trees, and a few small areas remain in native hardwoods. Tree seedlings and cuttings have difficulty withstanding the wetness associated with this soil, but trees grow well once they are established. Surface drainage by field ditches generally removes excess water but where there are potholes, grading is usually necessary. The operation of planting or harvesting equipment is difficult during wet periods. Providing drainage and harvesting in dry periods are alternatives.

This soil is in capability subclass IIIw; woodland suitability subclass 2w.

60—Sharkey-Steele complex. This complex consists of nearly level, poorly drained and moderately well drained soils in broad basins. It is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. It is about 75 to 80 percent Sharkey soils and about 10 to 15 percent Steele soils. Individual areas range from about 40 to more than 200 acres. These two soils are so intermingled that they could not be shown separately at the scale selected for mapping.

Typically, the Sharkey soil has a surface layer of very dark grayish brown silty clay about 7 inches thick. The subsoil is about 47 inches thick. It is dark gray, mottled, sticky and plastic clay. The substratum is dark gray and gray, mottled clay to a depth of 72 inches or more.

Typically, the Steele soil has a surface layer of dark grayish brown fine sand about 8 inches thick. Below this is dark brown and brown loamy sand about 14 inches thick. The next layer is grayish brown fine sandy loam about 4 inches thick. Below this to a depth of 60 inches or more is very dark gray and dark gray, sticky and plastic clay. Where the surface layer has been cut or removed by land grading, the clayey layer is closer to the surface.

Included with this complex in mapping are small areas of Alligator and Roellen soils. Alligator soils are in positions similar to those of Sharkey soils but have an acid subsoil, and Roellen soils have a darker surface layer. Areas of this unit that are between the levee and the Mississippi River are subject to frequent flooding. These inclusions make up about 10 percent of the unit.

Permeability in the Sharkey soil is very slow, but it is rapid in the upper layers of the Steele soil and slow in the underlying clayey layers. Surface runoff is slow or very slow in the Sharkey soil because of its lower position. Surface runoff in the Steele soil is slow because most of the rainfall is absorbed into the sandy surface layers. The available water capacity is moderate for both soils. The Sharkey soil and the underlying layers of the Steele soil shrink when dry and swell when moist. A water table is perched above the clayey layers of the Steele soil and water often ponds on the Sharkey soil. Natural fertility in the Sharkey soil is high, but it is medium in the Steele soil. Organic matter content is moderate in the Sharkey soil, but it is moderately low in the Steele soil. Reaction of the subsoil in the Sharkey soil is medium acid to moderately alkaline, and the clayey layers of the Steele soil are very strongly acid to neutral. Reaction of the surface layer in both soils varies widely because of local liming practices. It is difficult to till and prepare a suitable seedbed on the Sharkey soil. The Steele soil is easily tilled but areas are not large enough to be managed separately. These areas are referred to locally as hot spots.

Most of the soils in this map unit are used for row crops. They have fair potential for cultivated crops and trees. They have poor potential for most sanitary facilities and building sites.

Most of these soils are suited to soybeans and grain sorghum. The main management concern is the wetness of the Sharkey soil. A system of field ditches generally removes excess water. Land grading helps drainage and eliminates potholes. The Steele soil is somewhat droughty during extended dry periods and is subject to wind erosion unless protected. Some reduction in the stand of wheat because of wetness can be expected in most years. Keeping a protective cover of crop residue on the surface reduces wind erosion on the Steele soil. In addition, this residue management increases infiltration and maintains or improves the organic matter content in both the Sharkey and Steele soils.

These soils are suitable for trees, and a few areas remain in woodland. The growth of tree seedlings and cuttings is restricted in the first few years by wetness, but once established they grow well. The excessive wetness of the Sharkey soil limits the use of equipment to periods of limited rainfall. Ditches generally remove excess surface water except in potholes.

This complex is in capability subclass IIIw; woodland suitability subclass for Sharkey soils is 2w, and for Steele soils is 3s.

61—Sikeston loam. This nearly level, poorly drained soil is in depressional areas and channels of former Mississippi River flood plains. This soil is subject to frequent flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are irregular in shape and range from 10 to more than 800 acres.

Typically, the surface layer is very dark gray loam about 6 inches thick. The subsurface layer extends to a depth of about 37 inches. The upper part is very dark gray clay loam about 7 inches thick, the middle part is very dark gray, mottled clay loam about 16 inches thick, and the lower part is very dark gray and dark gray, mottled loam. The substratum extends to a depth of 60 inches or more. The upper part is grayish brown, mottled loam, and the lower part is dark grayish brown and grayish brown loamy sand. In some areas the dark surface layer is less than 24 inches thick.

Included with this soil in mapping are small areas of Diehlstadt, Cairo, Lilbourn, and Roellen soils. The Diehlstadt and Lilbourn soils are somewhat poorly drained, contain more sand, and are on slightly higher positions on the landscape. Cairo soils are underlain with sand at a depth of 20 to 40 inches. Roellen soils are adjacent to the Sikeston soils but contain more clay throughout the profile and are at slightly lower elevations. These inclusions make up about 12 percent of this unit.

This Sikeston soil has moderately slow permeability. Surface runoff is slow or very slow, and the available water capacity is high. A water table commonly occurs about 1 foot below the surface during wet periods except in areas that are drained and have ditches. Natural fertility and organic matter content are high. Reaction ranges from slightly acid to mildly alkaline throughout the soil. The surface layer is friable and easily tilled, but if worked when wet, it becomes cloddy, compact, and will tend to form a plowpan.

Most areas of this soil are used for row crops. It has good potential for cultivated summer annuals, pasture, hay, and bottom land trees. It has poor potential for most sanitary facilities and as building sites.

When drained, this soil is suited to soybeans, cotton, corn, grain sorghum, and pasture and hay. Because of wetness, wheat generally has some stand reduction in areas that are not drained. A system of field ditches generally will remove excess surface water. Land grading helps to eliminate potholes and provides a suitable grade for application of irrigation water. Care should be exercised to avoid deep cuts that would bring the sandy substratum too close to the surface. Keeping a protective cover of crop residue on the surface and mixing the remainder into the surface soil helps to maintain organic matter content and soil tilth.

This soil is suited to trees, and a few areas remain in native hardwoods. Tree cuttings and seedlings grow well once established, but wetness generally causes some seedling mortality. Surface drainage by a system of field ditches or building up tree rows reduces wetness for young trees. Plant competition can be controlled by site preparation or spraying.

This soil is in capability subclass IIIw; woodland suitability subclass 2w.

62—Steele fine sand. This nearly level, moderately well drained soil is in narrow bands along the Mississippi River or in broader areas near old levee breaks. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are irregular in shape and range from 10 to 75 acres.

Typically, the surface layer is dark grayish brown fine sand about 8 inches thick. An upper substratum is dark brown loamy sand and grayish brown sandy loam about 18 inches thick. Below this is gray and dark gray sticky and plastic clay that extends to a depth of 60 inches or more. Where the surface layer has been cut or removed during land grading, the clayey layer is closer to the surface.

Included with this soil in mapping are small areas of moderately well drained Caruthersville soils, somewhat poorly drained Commerce soils, and poorly drained Jackport soils on similar positions on the landscape. The poorly drained Mhoon soils are at lower elevations. These inclusions make up about 10 percent of this unit.

This Steel soil has rapid permeability in the sandy upper part, but permeability is slow in the underlying clayey layers. The available water capacity is medium. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from medium acid to neutral throughout the soil. The surface layer is easily tilled throughout a wide range in moisture content.

Most of this soil is cultivated. It has fair potential for crops, good potential for woodland, and poor potential for sanitary facilities and as building sites.

Most of this soil is used for soybeans and grain sorghum. The main management concerns are droughtiness and wind erosion. Overhead irrigation would help to eliminate the droughtiness, but most areas are too small for this to be practical. Managing crop residue to leave a protective cover on the surface reduces wind erosion and improves organic matter content.

This soil is suited to trees, and a few areas remain in woodland. The growth of tree seedlings and cuttings is restricted in the first few years by the droughtiness of the surface soil, but once established they grow well.

This soil is in capability subclass IIw; woodland suitability subclass 3s.

63—Tiptonville silt loam. This nearly level, moderately well drained soil is on broad, old natural levees or terraces. Individual areas are broad and uniform and range from 20 acres to more than 800 acres.

Typically, the surface layer is very dark grayish brown silt loam about 6 inches thick. The subsurface layer is very dark grayish brown silty clay loam to a depth of about 15 inches. The subsoil extends to a depth of 60 inches or more. The upper part is dark brown silty clay loam; the middle part is dark brown, mottled silt loam and brown silt loam; and the lower part is brown, mottled silt loam. In some areas the upper part of the subsoil does not have grayish mottles.

Included with this soil in mapping are small areas of well drained Bosket and Dubbs soils on similar positions on the landscape, somewhat poorly drained Reelfoot soils on lower parts of terraces, and poorly drained Roellen soils in old stream channels and basins. These inclusions make up about 10 to 12 percent of this unit.

This Tiptonville soil has moderate permeability. Surface runoff is medium, and the available water capacity is very high. Natural fertility is high, and the organic matter content is moderate. Reaction ranges from slightly acid to strongly acid in the subsoil. The surface layer is friable and easy to till throughout a wide range in moisture content.

Most areas of this soil are cropland. It has good potential for cultivated crops, small grains, pasture, and hay and trees. It has poor potential for most sanitary facilities and fair potential as building sites.

This soil is suited to corn, cotton, soybeans, small grains, and grasses and legumes. Many areas of this soil require surface drainage for proper management. Tilling the soil when it is wet destroys tilth and results in compaction. Good management should provide a protective residue cover that maintains or improves soil fertility, increases water intake, and reduces crusting.

Only small areas of this soil are used for pasture and hay. Grazing when the soil is too wet results in compaction and poor tilth. Restricted grazing during wet periods is necessary to maintain the pasture and soil in good condition.

This soil is suited to trees, and a few areas remain in woodland. Plant competition is the main concern of management. Such competition can be controlled by spraying or prescribed burning.

This soil is generally unsuited to most sanitary facilities because of wetness. If sewage lagoons are constructed, special treatment should be used to seal the bottom of the lagoon. This soil is suited to dwellings without basements. Local roads can be strengthened by adding extra base material.

This soil is in capability class I; woodland suitability subclass 2o.

64—Towosahgy fine sandy loam. This nearly level, well drained soil is on old natural levees and terraces. Individual areas of this unit are irregular in shape and range from 20 to more than 400 acres.

Typically, the surface layer is very dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer is very dark gray fine sandy loam about 13 inches thick. The substratum extends to a depth of 60 inches or more. It is dark brown and brown loamy fine sand and brown fine sand.

Included with this soil in mapping are small areas of Bowdre, Malden, Tiptonville, and Sikeston soils. Bowdre soils have a finer textured surface layer and are somewhat poorly drained. Sikeston soils are poorly drained and are in the lower areas. Tiptonville soils are moderately well drained and are slightly lower on the landscape. Malden soils are sandy, are excessively drained, and are on higher positions than Towosaghy soils. These inclusions make up about 12 percent of this unit.

This Towosahgy soil has moderate permeability in the upper part and rapid permeability in the sandy lower part. The available water capacity is moderate, and surface runoff from cultivated fields is medium. Natural fertility is high, and organic matter content is moderate. The reaction ranges from medium acid to neutral throughout. The surface layer is friable and easy to till throughout a fairly wide range in moisture content.

Practically all of this soil is cultivated. It has good potential for crops, hay, and pasture. It has poor potential for most sanitary facilities and fair potential for most building sites.

This soil is suited to corn, soybeans, wheat, grain sorghum, and grasses for hay and pasture. Droughtiness is the main concern of management for crop production. This factor can be overcome by the use of overhead sprinkler irrigation. Management that keeps a protective cover of crop residue on the surface and mixes the remainder into the soil helps to maintain good tilth and organic matter content.

This soil is generally unsuitable for sanitary facilities because of seepage. If sewage lagoons and trench type landfills are constructed, it is necessary to seal the bottoms to prevent seepage. This soil is suitable for building sites.

This soil is in capability subclass IIs; woodland suitability subclass 3s.

65—Tunica silty clay loam. This nearly level, poorly drained soil is on flood plains of the Mississippi River. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are irregular in shape and range from 20 to more than 300 acres.

Typically, the surface layer is very dark grayish brown silty clay loam about 5 inches thick. The subsoil is about 25 inches thick. It is dark gray silty clay. The substratum is grayish brown silt loam in the upper part and is grayish brown, mottled fine sandy loam to a depth of 60 inches or more.

Included with this soil in mapping are small areas of poorly drained Sharkey soils at the lower elevations, somewhat poorly drained Commerce soils similar in elevation to the Tunica soil, and somewhat poorly drained Bowdre soils at the higher elevations. Also included are areas that are between the levee and the Mississippi River that are subject to frequent flooding. These inclusions make up about 15 percent of this unit.

This Tunica soil has very slow permeability in the upper part and moderate permeability in the substratum. Runoff is slow, and the available water capacity is high. The soil cracks during extended dry periods but swells when wet. Natural fertility is medium, and the organic matter content is moderately low. Reaction ranges from medium acid to mildly alkaline throughout the soil. It is firm and difficult to till, and in low places it remains wet for long periods during spring and winter.

Most areas of this soil are cultivated. A few wet areas remain in woodland. This soil has good potential for soybeans, grain sorghum, grass for hay and pasture, and for trees. It has poor potential for sanitary facilities and as building sites.

This soil is suited to soybeans, grain sorghum, and grasses where drained. A system of field ditches generally removes excess surface water. Land grading aids drainage and eliminates potholes. Proper timing of tillage is important in maintaining tilth.

This soil is well suited to trees, and a few small areas remain in woodland. Tree seedlings and cuttings have difficulty withstanding the wetness associated with this soil, but trees grow well once established. Surface drainage by field ditches generally removes excess water, but where there are potholes, grading is necessary. Operation of planting and harvesting equipment is difficult during wet periods. Providing drainage and harvesting in dry periods are alternative solutions.

This soil is in capability subclass IIIw; woodland suitability subclass 1w.

66—Wardell loam. This nearly level, poorly drained soil is along low lying concave drainageways or slightly convex, low natural levees. This soil is subject to rare flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are most commonly long and narrow and range from about 10 to 80 acres.

The surface layer is very dark grayish brown loam about 7 inches thick. The subsoil is about 19 inches thick. It is gray, mottled loam. The substratum is gray, mottled sandy loam and loamy sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of somewhat poorly drained Lilbourn soils and poorly drained Sikeston soils. Lilbourn soils are on low terraces and Sikeston soils are generally in the slightly lower areas in depressions or along drainageways. These inclusions make up about 10 percent of the unit.

This Wardell soil has slow permeability. Surface runoff is slow, and the available water capacity is high. A water table is common at a depth of about 18 inches during winter and spring. Natural fertility is medium, and organic matter content is moderate. Reaction ranges from very strongly acid to slightly acid in the subsoil but is neutral in the surface layer in many places because of local liming practices. The surface is friable and easily tilled, but unprotected soil will puddle and crust after hard rains. Concave drains accumulate runoff from higher positions, and some overflow for short periods.

Most areas of this soil are used for row crops. It has good potential for cultivated crops, hay, and pasture and poor potential for sanitary facilities and as building sites.

This soil is suited to soybeans, cotton, wheat, corn, grain sorghum, and grasses and legumes for hay and pasture. Wetness is the main management concern. Excess surface water can generally be removed by field ditches. Land grading not only enhances drainage but eliminates potholes and provides a uniform grade for supplemental irrigation. Keeping some crop residue as a protective cover on the surface and mixing the remainder into the surface soil help to maintain organic matter content and reduce crusting. If tilled when wet, this soil often develops a plowpan.

This soil is in capability subclass IIw; woodland suitability subclass 3w.

67—Orthents-Water complex. This map unit consists of the levee that parallels the Mississippi River and the adjacent borrow pits from which the materials for this levee were taken. It also includes the Headwater Diversion Channel and its levee system. The levees have strongly sloping to steep side slopes and gently sloping tops. These areas are typified by long, narrow bands of loamy and clayey soils. The delineations are long and continuous and are about 15 to 20 percent water. Soil areas between the pits and levees are so inaccessible and disturbed that they could not be shown separately at the scale selected for mapping.

This map unit is vegetated by native grasses, shrubs, and trees. It consists of materials ranging in texture from sand to clay that were dug from ditches and borrow pits.

Included with this complex in mapping are small areas of somewhat poorly drained Bowdre soils, moderately well drained Caruthersville soils, and somewhat poorly drained Commerce soils. Also included are the poorly drained Sharkey soils. These are the areas between the levee and ditches and between the borrow pits.

Most of this map unit is drained by the adjacent ditches. Most of it, however, is also subject to flooding. It has poor potential for cultivated crops, pasture, and hay and fair potential for trees. It has poor potential for most sanitary facilities and as building sites.

The levees and areas around the borrow pits are in bermudagrass, fescue, or in timber. Areas in grass or pasture are cut for hay. Cottonwood and willow trees are in most of the wooded areas.

Tree seedlings and cuttings grow well once they are established, but wetness and flooding cause some difficulty. The accessibility and wetness present problems when machinery is used for planting and harvesting.

The extreme variability of soil materials and excessive wetness are the major concerns for most sanitary facilities and building sites. This map unit is suited to wildlife habitat and recreational development. The water provides a gathering place for migrating waterfowl, and the levee provides areas for food. Fishing, frogging, and hunting are common.

This map unit is not assigned to a capability group or woodland suitability subclass.

68—Pits, quarry This map unit consists of areas of Pits and quarries from which the original soil and underlying rock have been removed by excavation. The depth of excavations generally ranges from about 4 to 8 feet in the Pits, to more than 100 feet in the quarries. Slopes range from nearly level on the floor to vertical on the walls. Individual areas range from about 5 to more than 100 acres.

The original soils have been destroyed, altered, or obscured to such a degree that identification and classification is not possible or practical.

In the uplands the quarries are within the Memphis and Menfro series. On the bottom land the Pits consist of sandy to clayey soil material. In Scott County, however, most of the Pits are sandy soils.

Included in mapping and making up less than 5 percent of the unit are small undisturbed areas of Memphis and Menfro soils.

Most of the Pits are now inactive and idle, supporting vegetation such as shrubs, weeds, grasses, or trees. A few Pits on the bottoms are farmed, but yields are low. In Scott County a few Pits in the uplands are mined for gravel. Some of the Pits hold water. The quarries are active and limestone and rock used for gravel are mined from them.

Pits, quarry is not assigned to a capability group or woodland suitability subclass.

70—Falaya silt loam. This nearly level, somewhat poorly drained soil is on flat, broad areas of former or active flood plains and along smaller, narrow drainageways in the uplands. This soil is subject to occasional flooding. It is protected by levees but may flood if a levee breaks or runoff is received from adjacent areas. Individual areas are generally elongated and parallel to the main streams. Individual areas range from about 10 to more than 800 acres.

Typically, the surface layer is dark brown silt loam about 6 inches thick. The substratum extends to a depth of 60 inches or more. The upper part is dark grayish brown, mottled silt loam about 23 inches thick, and the lower part is stratified, grayish brown, mottled silt loam. In some areas reaction is slightly acid or neutral throughout.

Included with this soil is mapping are slightly higher areas of moderately drained Adler soils and lower areas of somewhat poorly drained Commerce soils. These inclusions make up about 10 percent of this map unit.

This Falaya soil has moderate permeability. Surface runoff is slow, and the available water capacity is very high. The water table is perched at a depth of about 20 inches during wet periods. Natural fertility is medium, and the organic matter content is moderately low. Reaction is strongly acid or very strongly acid below the surface. The reaction in the surface layer is neutral in places because of local liming practices. The surface layer is very friable and easily tilled throughout a fairly wide range in moisture content. The exposed soil tends to puddle and crust after hard rains.

Most areas of this soil are used for crops. It has good potential for cultivated crops, hay, pasture, and trees. It has poor potential for sanitary facilities and as building sites.

This soil is suited to soybeans, wheat, cotton, corn, grain sorghum, and grasses and legumes for hay and pasture. Stands of winter annuals and perennial crops may be reduced by excess water in winter and spring. The wetness of this soil is due in part to runoff from other areas and in part to the water table. A system of field ditches generally removes excess surface water. Land grading enhances drainage, eliminates potholes, and provides a suitable grade for irrigation. Keeping some crop residue as a protective cover on the surface and mixing the remainder into the surface soil reduces crusting, improves fertility, and maintains organic matter content. Using terraces or diversions to divert runoff from higher positions would provide some protection in the uplands.

This soil is suited to trees, and a few areas remain in native hardwoods. Tree cuttings and seedlings survive and grow well once they are established. If trees become large enough, some tend to topple over or are windthrown. Harvesting or use of heavy equipment is generlly restricted to summer and early fall because of wetness.

This soil is in capability subclass IIw; woodland suitability subclass 1o.

prime farmland

Prime farmland is considered by the U.S. Department of Agriculture to be of major importance in providing the Nation's short- and long-range needs for food and fiber. Because the supply of high quality farmland is limited, responsible levels of government, as well as individuals, must encourage and facilitate the best use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is the best land for producing food, feed, forage, fiber, and oilseed crops. The soil quality, growing season, and moisture supply are sufficient to produce a sustained high yield of crops when this land is treated and managed with minimal inputs of energy and economic resources. Farming it results in the least possible damage to the environment.

Prime farmland may now be used for crops, pasture, woodland, or similar purposes but may not be urban and built-up land or water areas. It must either be used for producing food or fiber or be available for these uses.

Prime farmland receives an adequate and dependable supply of moisture from precipitation or irrigation and it has a favorable temperature and growing season. The level of acidity or alkalinity is acceptable. It has few or no rocks and is permeable to water and air. Prime farmland is not excessively erodible or saturated with water for long periods and is not frequently flooded during the growing season. The slope ranges mainly from 0 to 5 percent. For more detailed information on the criteria for prime farmland, consult the local staff of the Soil Conservation Service or the Missouri University Extension Service.

About 126,000 acres, or 34 percent of Cape Girardeau County; 215,000 acres, or 80 percent of Mississippi County; and 160,000 acres, or 56 percent of Scott County meet the soil requirements for prime farmland. In Cape Girardeau County areas of prime farmland vary a great deal. Some of the broad ridgetops in the uplands, mainly in soil association 8; the bottoms in association 4; and the soils in the Mississippi Delta in associations 5, 10, 11, and 13 are prime farmland. In Mississippi County prime farmland dominates all areas except in soil association 15. In Scott County areas of prime farmland are on the bottoms in soil association 5 and throughout most areas in the Mississippi Delta except soil associations 14 and 15. The dominant crops grown on the prime farmland in these areas are soybeans, corn, wheat, grain sorghum, and hay. In some parts of the survey area, there has been a recent trend toward the loss of some prime farmlands to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and difficult to cultivate, and generally less productive.

The map units that make up prime farmland in Cape Girardeau, Mississippi, and Scott Counties are listed in this section. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps in the back of this publication. The soil qualities that effect use and management are described in the section "Detailed soil map units."

Soils that have a limitation of wetness or flooding may qualify as prime farmland where this limitation is overcome by drainage or flood control measures. In the following list of map units that have one or more of these limitations, the conditions under which the map units qualifies as prime farmland are shown in parentheses after the map unit name. Onsite evaluation is necessary to determine if corrective measures have been applied and if the soils qualify for designation as prime farmland.

The map units that meet the soil requirements for prime farmland are:

12A—Elsah silt loam, 0 to 3 percent slopes
13—Haymond silt loam, frequently flooded (where protected from flooding)
15B—Iva silt loam, 2 to 6 percent slopes
16B—Menfro silt loam, 2 to 5 percent slopes
22—Wilbur silt loam, frequently flooded (where protected from flooding)
23—Wakeland silt loam, frequently flooded (where protected from flooding)
31—Adler silt loam
33—Alligator silty clay (where drained and protected from flooding)
34—Beulah fine sandy loam
36—Bosket fine sandy loam
37A—Bowdre silty clay loam, 0 to 3 percent slopes (where protected from flooding)
38A—Broseley loamy fine sand, 0 to 3 percent slopes
39—Cairo silty clay (where drained)
41A—Caruthersville very fine sandy loam, 0 to 3 percent slopes (where protected from flooding)
42—Commerce silty clay loam (where drained and protected from flooding)

43—Cooter silty clay loam
46—Dubbs silt loam
47—Dundee silt loam (where drained)
48—Farrenburg fine sandy loam
49—Jackport silty clay loam (where drained)
50—Lilbourn fine sandy loam (where drained)
52B—Memphis silt loam, 2 to 5 percent slopes
53—Mhoon silt loam (where drained and protected from flooding)
54—Reelfoot silt loam
55—Roellen silty clay (where drained and protected from flooding)
58—Sharkey silty clay (where drained and protected from flooding)
59—Sharkey silty clay loam (where drained and protected from flooding)
61—Sikeston loam (where drained and protected from flooding)
63—Tiptonville silt loam
64—Towosahgy fine sandy loam
65—Tunica silty clay loam (where drained and protected from flooding)
66—Wardell loam (where drained)
70—Falaya silt loam (where drained and protected from flooding)

use and management of the soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

crops and pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

In Cape Girardeau County about 94,800 acres was used for cultivated crops in 1975 according to the Missouri Crop and Livestock Reporting Service. Of this total, 46,000 acres was in soybeans and 15,900 acres in wheat, much of which was followed by soybeans. Corn was grown on 28,500 acres and grain sorghum on 4,400.

In Mississippi County about 259,000 acres was in cultivated crops. Of this total, 181,000 acres was in soybeans and 44,000 acres in wheat, and much of this was followed by soybeans. Corn was grown on 28,500 acres and grain sorghum on 6,300 acres.

In Scott County about 207,400 acres was in cultivated crops. Of this total, 129,000 acres was in soybeans and 56,000 acres in wheat, and much of this was followed by soybeans. Corn was grown on 16,400 acres and grain sorghum on 6,000 acres.

The potential of the soils in the survey area for increased production of food and fiber is good. The 18,000 acres of woodland in Mississippi County is generally wet or floods, but part of it would be cropped if properly managed. In Cape Girardeau and Scott Counties most of the woodland is in the uplands. If these areas were cleared for crops they would be subject to severe erosion.

Soil drainage is the major concern on the cropland in the bottoms. The soils are naturally wet because of their positions on the landscape or slow permeability or both. Many soils such as Allemands, Alligator, Cairo, Jackport, Mhoon, Roellen, Sharkey, Sikeston, and Tunica soils receive runoff from surrounding areas and are ponded for varying periods. Excessive water is removed from nearly all the soils through a system of field ditches. Many areas are (fig. 13) shaped to enhance drainage. Clana, Malden, and Scotco soils are excessively drained and are droughty during hot, dry periods. Scotco soils are very droughty, and yields are very low unless some type of irrigation is used.

Water erosion is the major concern on about 300,000 acres of the survey area. About 255,000 of these acres are in the uplands of Cape Girardeau County, and the rest are in the uplands of Scott County. A large part of this acreage is in woodland and pasture, with the remainder in cropland, orchards, and vineyards. Loss of the surface layer through erosion reduces the productivity and leaves the soil with poor tilth. The surface layer contains most of the nutrients and organic matter needed for plant growth. When it is lost and the subsoil is in the plow layer, the tilth is difficult to maintain. This eroded surface puddles and crusts, causing a substantially lower water intake rate.

The Memphis and Menfro soils are very susceptible to erosion. The eroded materials are transported by water into ponds and streams. Control of erosion minimizes stream pollution by sediment and improves the quality of water for municipal and recreational uses as well as for fish and wildlife. Cover crops, conservation tillage, terraces, no-till, diversions, permanent vegetation, and mechanical practices are used to control erosion.

Wind erosion (soil blowing) is a hazard, particularly on the sandy Clana, Malden, and Scotco soils. Beulah, Broseley, and Bosket soils are also subject to blowing if not protected. Wind erosion not only causes soil loss but damages young plants. Winter cover crops, field windbreaks, and wind stripcropping are effective in controlling wind erosion.

Soil fertility is naturally low in some soils in the survey area. The Scotco soil is the main soil on the bottom lands that has low natural fertility, as do the Clarksville, Peridge, Poynor, and Saffell soils in the uplands. Most of these soils, however, respond well to the addition of fertilizer and lime. The soils in the uplands generally are more acid than the soils on the bottom lands.

Soil tilth is an important factor in seedbed preparation and crop production. Soils with good tilth have granular structure in the surface layer, are easily tilled, and are more porous.

The sandy surface layer of Broseley, Clana, Malden, and Scotco soils is easily tilled into a good seedbed but tends to blow. The fine sandy loam and sandy loam surface layers of Beulah, Bosket, Farrenburg, and Lilbourn soils are easily tilled, hold moisture well, and do not blow unless unprotected areas are large. The silt loam and loam surface layers of Adler, Dubbs, Dundee, Falaya, Haymond, Memphis, Menfro, Mhoon, Reelfoot,

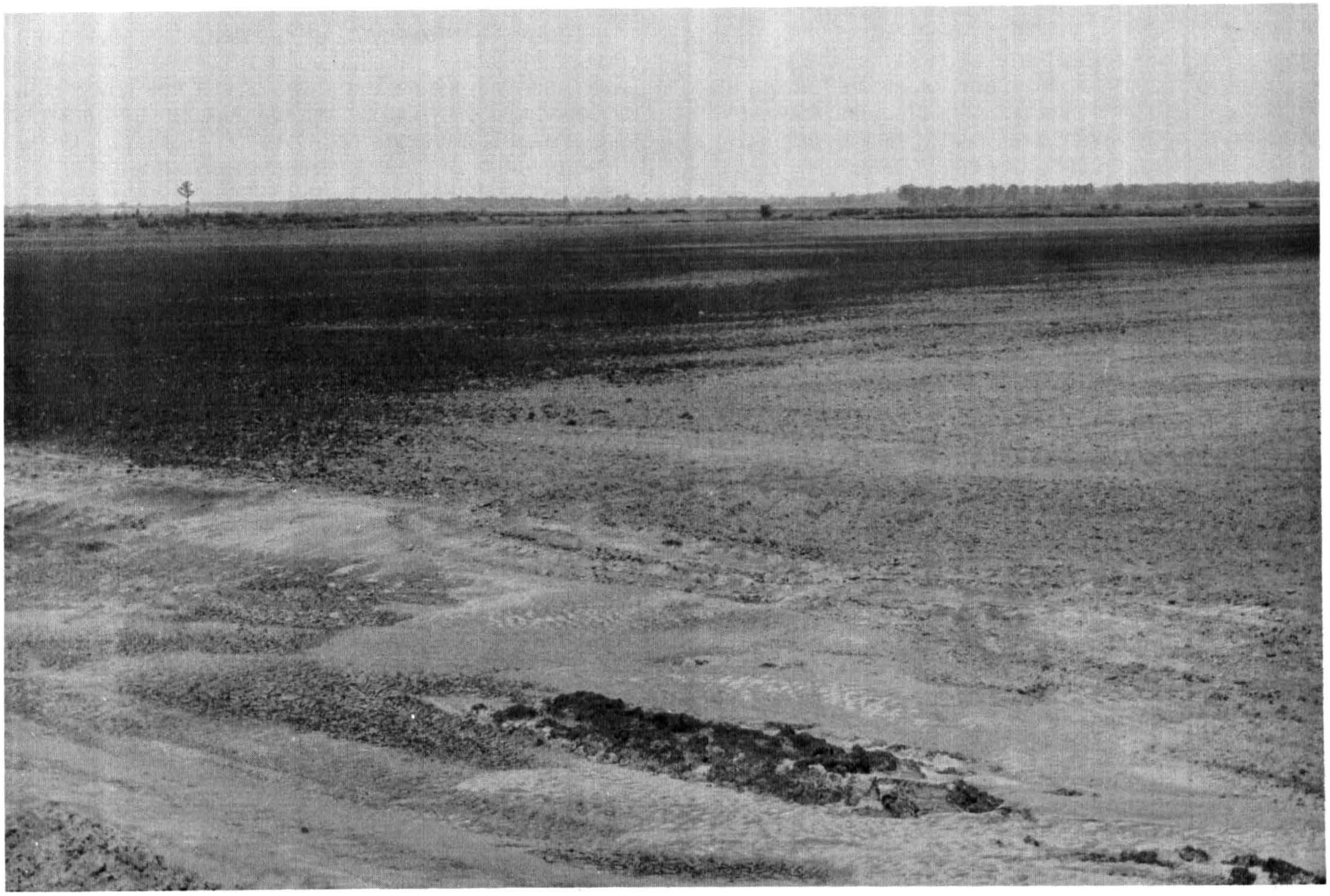

Figure 13.—Land grading eliminates potholes and insures uniform runoff. It also improves the soil surface for the use of irrigation.

Tiptonville, Wakeland, Wardell, and Wilbur soils are easily tilled and make a good seedbed. Maintaining a protective residue cover and returning organic residue to the surface soil can effectively reduce soil crusting.

The silty clay loam, silty clay, and clay surface layers of Alligator, Bowdre, Cairo, Commerce, Cooter, Jackport, Roellen, Sharkey, and Tunica soils are difficult to work into a good seedbed. If worked when wet the surface layer tends to become a mass of hard clods when it dries. Fall or early spring plowing with subsequent rains generally melts the clods into small aggregates that make a more desirable seedbed.

Field crops that are suited to local soils and the climate include many crops that are not now commonly grown. Rice, peanuts, sunflowers, potatoes, popcorn, sweet potatoes, and other crops can be grown if other conditions are favorable. Oats, barley, alfalfa, and other close-growing crops could be grown.

Special crops grown commercially in the survey area are rice, watermelons, cantaloups, strawberries, peaches, apples, pears, potatoes, green beans, and tomatoes. In recent years some of these crops, such as potatoes, green beans, and tomatoes, are grown only in small acreages. Sandy Clana, Malden, and Scotco soils have good potential for specialty crops, but they should be limited to small acreages because they need close attention.

Supplemental irrigation is practiced on soils throughout the survey area except in the uplands. This irrigation is used on an as-needed basis—selected areas are not irrigated in some years but are irrigated many times in others.

Most of the irrigation systems in Cape Girardeau and Scott Counties are of the furrow type, with the use of the sprinkler type increasing in Scott County at a rapid rate. In Mississippi County the sprinkler system is dominantly used. Where the sprinkler systems are used, most of the land has been graded. Soils that are irrigated range in texture from clayey to sandy and in drainage from poorly drained to excessively drained.

Many of the levees, such as those along the Mississippi River and the Headwater Diversion Channel, are used for pasture and hay crops.

The latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

land capability classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the section "Detailed soil map units."

woodland management and productivity

James L. Robinson, forester, Soil Conservation Service, assisted in the preparation of this section.

In 1972, a survey conducted by the Forest Service of the U.S. Department of Agriculture showed that about 24 percent of Cape Girardeau County, or 91,100 acres, was wooded (*19*). This is a slight increase over 85,800 wooded acres in 1959 (*6*).

The same survey showed that Mississippi County had about 5 percent of the land area, or 18,000 acres, in wooded land. This is a decline of 6,200 acres since 1959.

Scott County also showed a significant decline in wooded acres in the 1972 survey, which indicated that 7 percent of the land area, or 13,800 acres, was wooded. This is a decline of 18,400 acres since 1959, or a reduction of about 57 percent over a 13-year period.

Much of the loss of wooded acreage is attributed to the conversion to cropland in Mississippi and Scott Counties.

The Missouri Archaeological Society defines five types of forest cover found in the flood plain region (*7*). They are:

The Cottonwood-Sycamore natural levee forest. Sycamore, cottonwood, and elm were the dominant tree species. This plant community was restricted to natural levees of the active river channel and was infrequently inundated.

The Sweetgum-Elm "cane ridge" forest. Dominant plant species were sweetgum, elm, and hackberry with a dense cane undergrowth. This plant community was widespread in the region and was situated on almost any soil except clays or newly deposited lands. It was not normally inundated except in times of high floods.

The Sweetgum-Elm-Cypress seasonal swamp. This forest type was located in areas subjected to seasonal periods of inundation. It appears to have developed in the flood plain interior on the lower part of old back slope remnants and in other low areas in clay soils.

The Willow and/or Cottonwood water edge brush. Willow and cottonwood are the main components in this plant community, which was frequently inundated. This community was characteristic of newly made ground along the river and in the interior on the fringes of bayous, swamps, and lakes.

The Cypress deep swamp. Baldcypress and water tupelo are the dominant plant species in this plant community. They were normally under at least a slight sheet of water throughout the year.

The Peridge-Poynor, Memphis, Menfro-Holstein, Menfro, and Menfro-Clarksville associations are dominant on the uplands in Cape Girardeau County. The main timber species on these soils are white oak, northern red oak, and hickory. Black oak, southern red oak, and scarlet oak are also present and in some areas are predominant in the stand. There are many combinations of oaks, hickories, and other hardwoods in association with these soils. The Menfro-Clarksville association also has a small area that falls within the present natural shortleaf pine range.

The Haymond-Wakeland association is on the bottom land that washed from loess-covered hills in Cape Girardeau County. On the better drained sites, yellow-poplar, white oak, and red oak predominate. On the wetter sites, sweetgum, Nuttall oak and willow oak are predominant. Other associates of this timber type are sugarberry (hackberry), green ash, American elm, overcup oak, pecan, eastern cottonwood, red maple, and rarely, baldcypress.

The Memphis association in Cape Girardeau and Scott Counties is made up of deep loess soils. Yellow-poplar, white oak, red oak, cherrybark oak, and sugar maple are the predominant species on timbered sites.

The remaining soil associations are in the Mississipi Delta. They are on terraces, levees, and flood plains in Cape Girardeau, Scott, and Mississippi Counties.

The species most commonly grown on the Sikeston associaton are baldcypress, water tupelo, black willow, American elm, cherrybark oak, Nuttall oak, and some sweetgum and red maple.

All other bottom-land soil associations have swamp chestnut oak, cherrybark oak, white oak, white ash, green ash, Nuttall oak, willow oak, sweetgum, silver maple, sycamore, pecan, American elm, river birch, and cottonwood, depending on the drainage characteristics of the site. Other hardwoods also grow in timbered areas. Most of this bottom land has been cleared for crops and the majority of the timbered sites are restricted to wet areas that have poor drainage or to farm woodlots.

Table 6 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: x, w, t, d, c, s, f, and r.

In table 6, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade where there are openings in the tree canopy. The invading plants compete with native plants or planted seedlings. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* indicates that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed to control undesirable plants.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

windbreaks and environmental plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, hold snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To insure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 7 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 7 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Soil Conservation Service or the Cooperative Extension Service or from a nursery.

recreation

Edward A. Gaskins, biologist, Soil Conservation Service, assisted in the preparation of this section.

The Statewide Comprehensive Outdoor Recreation Plan (SCORP) shows a total of 2,030 acres of existing recreational developments in Cape Girardeau (501), Scott (1,227), and Mississippi (302) Counties (*11*). The facilities listed include 5 miles of horse trails, 96 acres of playfields, 380 acres of fishing waters, 265 acres of boating water, 75 acres of water suitable for canoe use, 115,900 square feet of swimming area, 19 acres of campgrounds, 10 miles of hiking trails, and 10 acres for picnicking. The report projects a minimum increase in the number of bike, foot, and horse trails, playfields, swimming areas, fishing and hunting areas by the target year of 1990. This would meet the needs of a projected three-county population of 121,600 (*12*).

State-owned lands of over 100 acres include Trail of Tears State Park (3,268 acres) and Lake Girardeau Wildlife Area (351 acres) in Cape Girardeau County; the Tywappity Community Lake (120 acres) in Scott County; and Big Oak Tree State Park (1,003 acres) and Upper Big Lake (160 acres) in Mississippi County. Several smaller public fishing and access areas as well as 415 miles of permanent flowing streams are also in the three-county area.

Twenty-one private commercial recreation enterprises operate within the survey area—6 in Cape Girardeau County, 13 in Scott County, and 1 in Mississippi County (*8*). They vary from campgrounds, fishing lakes, and hunting areas to rodeos, racetracks, and miniature golf courses. Each county committee listed two major recreation needs—in Cape Girardeau County, farm type recreation opportunities and additional golf facilities; in Scott County, additional hunting and natural or scenic areas; and in Mississippi County, waterfowl hunting areas and fishing lakes.

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

wildlife habitat

Edward A. Gaskins, biologist, Soil Conservation Service, assisted in the preparation of this section.

Cape Girardeau County is one of the southernmost counties that make up the North and East Ozark Border Zoogeographic Region. Scott and Mississippi Counties make up two of the seven counties in the Mississippi Lowlands Zoogeographic Region (*13*). Topographically, this lowland region and the southern quarter of Cape Girardeau County form the northern extremity of the great Mississippi Valley delta that begins at the Gulf of Mexico. Historically, this region was once a great cypress swamp, but over the past 100 years, drainage and timber activities have converted most of the area to farmland. The northern three quarters of Cape Girardeau County is typical of the eastern Ozark Border Region with its rivers and rolling and hilly topography. Today, approximately 14 percent of the three-county area is in woody cover, and the remainder is in cultivated land and grassland.

Wildlife populations are mainly farm game species and woodland game is restricted to the timbered upland part of Cape Girardeau County. The lowland region enjoys the highest concentration of migrating mourning dove in Missouri. It has the lowest population of quail and rabbit of any area in the State (*12*). Adequate cover, extending into food producing areas, is the major habitat element missing in the delta counties. Waterfowl populations are primarily concentrated in the bottom lands along the Mississippi River and parts of the various drainage systems in the lowland region. Furbearers, such as fox, opossum, and skunk, are fairly abundant in the upland, but muskrat and mink are trapped in the lowland counties. Good populations of songbirds are throughout the survey area, and woodland species are much more common in the uplands.

The Peridge-Poynor, Menfro, and Menfro-Clarksville soil associations in the upland and the Memphis association and the wooded part of the Commerce-Caruthersville association that is within the Mississippi River levee system in the lowland furnish the primary habitat for woodland wildlife. The rest is supplied by various timber tracts scattered throughout other soil associations. Roughly 130,000 acres, or 14 percent of the total land area, is estimated to be in some form of woody vegetation. Cape Girardeau County is more than 66 percent woodland. Two State-owned areas are located in this area. The Tywappity Tower Site (64 acres) and the Lake Girardeau Wildlife Area (351 acres) offer public hunting for forest game. In Scott and Mississippi Counties, more and more woodland is converted to other land uses, and the populations of forest wildlife continue to decrease.

The remaining soil associations make up the principal cropland in the area. Over 640,000 acres, or roughly 71 percent of the total three-county area, is used for the production of cultivated crops. These associations provide the major habitat for openland wildlife. Large fields and a serious lack of woody and herbaceous cover, however, prevent much of this territory from being fully occupied. This is especially true in Scott and Mississippi Counties. Although conversion is slowing down, remaining wooded, rough, and wet areas will be converted to cropland as increased returns from agricultural products make these changes economically feasible. With the exception of mourning dove, the future of game species remains bleak in the intensively farmed regions of the lowlands.

The primary waterfowl area is along the river in the Commerce-Caruthersville association. Waterfowl is also recorded along major drainageways in the Sharky, Farrenburg-Lilbourn-Broseley, Sikeston, and Diehlstadt associations. The few remaining sloughs, swamps, and other existing wetlands are also used during the various seasons of the year. These sites furnish local residents good hunting opportunities during the fall season.

The Mississippi River, which borders the region for 115 miles, upland rivers and creeks, and the associated blueholes, oxbows, drainage ditches, borrow pits, chutes, and bayous all contribute to the fishery resource of the three-county area.

The Mississippi River offers fishing for channel, blue, and flathead catfish, carp, carpsuckers, and buffalo. Crappie and sturgeon catches are also occasionally reported. The Whitewater River and Apple Creek in Cape Girardeau County are examples of unchannelized good quality streams with a bass, goggle-eye, sunfish, and channel catfish population. Some ditches offer good fishing for largemouth bass, crappie, bluegill, and channel catfish. Others are shallow and turbid and support only seasonal fishing for black bullheads and carp. The lakes and ponds of the area are generally stocked with largemouth bass, channel catfish, and bluegill, either singly or in combination.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, barley, millet, soybeans, and milo.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are bluegrass, clover, switchgrass, orchardgrass, indiangrass, trefoil, alfalfa, and crownvetch.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, pokeweed, foxtail, croton, and partridge pea.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, wild plum, sumac, persimmon, and sassafras. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, crabapple, Amur honeysuckle, hawthorn, and hazelnut.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, cutgrass, cattail, rushes, sedges, and buttonbush.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite, pheasant, meadowlark, field sparrow, cottontail, red fox, woodchuck, and mourning dove.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

building site development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

sanitary facilities

Table 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

construction materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

water management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and for embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances, such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

soil properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

engineering index properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent.

Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

physical and chemical properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3 bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion and the amount of soil lost. Soils are grouped according to the following distinctions:

1. Sands, coarse sands, fine sands, and very fine sands. These soils are generally not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.

2. Loamy sands, loamy fine sands, and loamy very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

3. Sandy loams, coarse sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loamy soils that are less than 35 percent clay and more than 5 percent finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.

5. Loamy soils that are less than 18 percent clay and less than 5 percent finely divided calcium carbonate and sandy clay loams and sandy clays that are less than 5 percent finely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.

6. Loamy soils that are 18 to 35 percent clay and less than 5 percent finely divided calcium carbonate, except silty clay loams. These soils are very slightly erodible. Crops can easily be grown.

7. Silty clay loams that are less than 35 percent clay and less than 5 percent finely divided calcium carbonate. These soils are very slightly erodible. Crops can easily be grown.

8. Stony or gravelly soils and other soils not subject to wind erosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 15, the estimated content of organic matter of the plow layer is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

soil and water features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt and water in swamps and marshes are not considered flooding.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 16.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An artesian water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A perched water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations generally can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavations.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured clayey soils that have a high water table in winter are most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*18*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 17, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning moist, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Entisols that have a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, mesic Typic Hapludalfs.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

soil series and their morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*17*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*18*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Adler series

The Adler series consists of deep, moderately well drained soils that have moderate permeability. These soils are along drainageways in the uplands and on old flood plains adjacent to the uplands. They formed in alluvium from loess. Slopes range from 0 to 2 percent.

Adler soils are adjacent to Commerce, Falaya, Memphis, and Menfro soils. Commerce soils are fine-silty and have low-chroma colors throughout. Falaya soils have low-chroma colors immediately below the surface layer. Memphis and Menfro soils are in the uplands and have argillic horizons.

Typical pedon of Adler silt loam, in a cultivated field about 1,225 feet north and 60 feet west of the southeast corner of section 13, T. 29 N., R. 11 E., in Cape Girardeau County.

Ap—0 to 8 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable common fine and medium roots; slightly acid; abrupt smooth boundary.
C1—8 to 14 inches; brown (10YR 5/3) silt loam; massive; friable; common fine roots; slightly acid; clear wavy boundary.
C2—14 to 23 inches; brown (10YR 5/3) silt loam; common fine faint grayish brown (10YR 5/2) mottles; massive; friable; slightly acid; clear wavy boundary.
C3—23 to 60 inches; brown (10YR 5/3) silt loam; common medium distinct light brownish gray (10YR 6/2) and many medium distinct dark brown (10YR 3/3) mottles; massive; friable; stratified; medium acid.

The soil ranges from medium acid to mildly alkaline throughout. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The C1 and C2 horizons have colors in values of 4 to 6 and chroma of 3 to 6. If the value is 6, the chroma is 3. Mottles of grayish brown, light brownish gray, and light gray are within 20 inches of the soil surface. The C3 horizon is generally mottled with gray, yellow, or brown or has a gray matrix and is stratified.

Allemands series

The Allemands series consists of deep, very poorly drained soils in the former Mississippi River flood plain. Permeability is rapid in the organic material and moderately slow in the underlying silty material. These soils formed in well decomposed organic material and the underlying silty alluvium. Slopes are less than 2 percent.

The Allemands soils in this survey area have textures under the organic layers that are not as clayey as defined in the range for the Allemands series. This difference, however, does not alter the use or behavior of the soil.

Allemands soils are commonly associated with Roellen and Sikeston soils. Both of these soils are in slightly higher areas on the landscape than Allemands soils. In both, the content of organic matter is less than 20 percent.

Typical pedon of Allemands muck, about 100 feet north and 1,625 feet east of the southwest corner of section 34, T. 29 N., R. 11 E, in Cape Girardeau County.

Oa1—0 to 7 inches; black (N 2/) muck; about 5 percent fiber, about 1 percent rubbed; weak fine granular structure; about 40 percent mineral content; slightly acid; clear smooth boundary.
Oa2—7 to 13 inches; black (N 2/) sapric material; about 10 percent fiber, about 1 percent rubbed; weak fine granular structure; about 40 percent mineral content; slightly acid; abrupt smooth boundary.
Oa3—13 to 15 inches; black (N 2/) sapric material; about 20 percent woody fiber, about 1 percent rubbed; weak coarse prismatic structure; about 50 percent mineral content; medium acid; abrupt smooth boundary.
Oa4—15 to 21 inches; black (N 2/) sapric material; about 10 percent fiber, about 1 percent rubbed; weak fine granular structure; about 70 percent mineral content; medium acid; clear smooth boundary.
Oa5—21 to 39 inches; black (N 2/) sapric material; about 5 percent fiber, about 1 percent rubbed; weak fine granular structure; about 70 percent mineral content; medium acid; abrupt smooth boundary.
IIAbg—39 to 60 inches; dark gray (N 4/) silty clay loam; weak fine subangular blocky structure; moderately alkaline.

Thickness of the organic material ranges from 16 to 51 inches. Fiber content, after rubbing, is less than 5 percent. Reaction ranges from medium acid to mildly alkaline in the organic horizons. The mineral fraction is dominantly clay and ranges from 15 to 40 percent in most horizons. The IIAbg horizon has colors of black (10YR 2/1, N 2/), dark gray (N 4/), and dark greenish gray (5BG 4/1). The texture is silty clay loam or silty clay. Reaction ranges from neutral to moderately alkaline.

Alligator series

The Alligator series consists of deep, poorly drained, very slowly permeable soils in depressions and old drainageways. They formed in clayey slack-water sediments of the Mississippi River. The shrink-swell potential is high. Slopes range from 0 to 2 percent.

Alligator soils are similar to Sharkey soils and are commonly adjacent to Dundee, Roellen, and Sharkey soils. Dundee soils are fine-silty and have an argillic horizon. Roellen soils have a mollic epipedon and are less than 60 percent clay in the control section. Sharkey soils range from medium acid to moderately alkaline in the control section.

Typical pedon of Alligator silty clay, 51 feet east and 39 feet north of the southwest corner of section 35, T. 29 N., R. 14 E., in Scott County.

Ap—0 to 3 inches; dark gray (10YR 4/1) silty clay, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure parting to weak fine granular; firm; few fine roots; medium acid; clear smooth boundary.
A12—3 to 6 inches; dark gray (10YR 4/1) clay; weak fine subangular blocky structure; firm; few fine roots; medium acid; abrupt smooth boundary.

B21g—6 to 20 inches; gray (10YR 5/1) clay; common fine prominent strong brown (7.5YR 5/6 & 5/8) and common fine distinct dark brown (7.5YR 4/4) mottles; weak fine subangular blocky structure; firm; very strongly acid; clear smooth boundary.

B22g—20 to 40 inches; dark gray (10YR 4/1) clay; common fine prominent strong brown (7.5YR 5/6) mottles; weak very fine subangular blocky structure; firm; very strongly acid; clear smooth boundary.

B23g—40 to 46 inches; gray (10YR 5/1) clay; common fine prominent strong brown (7.5YR 5/6) and common fine distinct yellowish brown (10YR 5/4) mottles; weak very fine subangular blocky structure; firm; very strongly acid; clear smooth boundary.

C—46 to 60 inches; dark gray (10YR 4/1) clay; common fine distinct yellowish brown (10YR 5/4) mottles; massive; slightly acid.

The thickness of the solum ranges from 40 to 57 inches. Except where limed, the reaction of the A and B horizons is strongly acid or very strongly acid. The C horizon is slightly acid or neutral. The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1. It is dominantly silty clay, but the range includes clay and silty clay loam. The Bg horizon has hue of 10YR and 2.5Y, value of 4 to 6, and chroma of 1 or 2. If the chroma is 2, the value is 6. Mottles in shades of brown range from few to many. The Bg horizon is clay or silty clay. Colors of the Cg horizon are similar to those of the Bg horizon. The Cg horizon is clay, silty clay, or silty clay loam.

Beulah series

The Beulah series consists of deep, somewhat excessively drained soils on high terraces or old natural levees. Permeability is moderately rapid in the subsoil and rapid in the substratum. These soils formed in alluvium. Slopes range from 0 to 2 percent.

Beulah soils are similar to Bosket soils and are adjacent to the Farrenburg, Malden, and Sikeston soils. Bosket soils have an argillic horizon and are fine-loamy. Farrenburg soils have an argillic horizon and have mottles in chroma of 2. Malden soils are more sandy and are on slightly higher positions on the landscape than Beulah soils. Sikeston soils are fine-loamy and are along drainageways or in depressions. They are poorly drained.

Typical pedon of Beulah fine sandy loam, 1,020 feet south and 610 feet west of the northeast corner of section 21, T. 27 N., R. 13 E., in Scott County.

Ap—0 to 4 inches; brown (10YR 4/3) fine sandy loam; weak very fine granular structure; very friable; common fine roots; very strongly acid; clear smooth boundary.

A12—4 to 8 inches; brown (10YR 4/3) fine sandy loam; weak very fine subangular blocky structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

B21—8 to 20 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine subangular blocky structure; very friable; few fine roots; strongly acid; clear smooth boundary.

B22—20 to 34 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine subangular blocky structure; friable; strongly acid; clear smooth boundary.

B23—34 to 40 inches; brownish yellow (10YR 6/6) fine sandy loam; weak fine subangular blocky structure; friable; strongly acid; clear smooth boundary.

C1—40 to 51 inches; yellowish brown (10YR 5/4) loamy sand; single grained; friable; strongly acid; clear smooth boundary.

C2—51 to 60 inches; brown (7.5YR 4/4) sandy loam; massive; friable; strongly acid.

The thickness of the solum ranges from 36 to 45 inches. The A and B horizons are very strongly acid to medium acid, except where limed. The C horizon ranges from strongly acid to neutral. The A horizon has color value of 3 or 4 and chroma of 2 or 3. It is dominantly fine sandy loam, but the range includes loamy fine sand. The B horizon commonly has color value of 4 and chroma of 4 in hue of 10YR and 7.5YR. Values up to 6, however, and chroma of 6 are included. Mottles in shades of brown are common in the B horizon. The C horizon has colors similar to the B horizon. Texture is sandy loam, loamy sand, or sand.

Bosket series

The Bosket series consists of deep, well drained soils that have moderate permeability. These soils formed in loamy alluvium on old natural levees and terraces. Slopes range from 0 to 2 percent.

Bosket soils are similar to Beulah and Broseley soils and are commonly adjacent to Beulah, Broseley, Dubbs, and Dundee soils. Beulah soils do not have an argillic horizon. Broseley soils contain more sand than Bosket soils. Dubbs and Dundee soils have fine-silty control sections.

Typical pedon of Bosket fine sandy loam, in a cultivated field about 1,240 feet east and 2,440 feet south of the northwest corner of section 14, T. 27 N., R. 14 E., in Scott County.

Ap—0 to 9 inches; dark brown (7.5YR 3/2) fine sandy loam; weak fine granular structure; very friable; few fine roots; medium acid; abrupt smooth boundary.

A3—9 to 21 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; few fine roots; medium acid; clear smooth boundary.

B21t—21 to 29 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine subangular blocky structure; very friable; few fine roots; thin clay films on faces of peds; medium acid; clear smooth boundary.

B22t—29 to 45 inches; brown (7.5YR 4/4) sandy clay loam; common fine faint dark yellowish brown (10YR

4/4) mottles; moderate fine and medium subangular blocky structure; firm; few fine roots; thin patchy clay films; strongly acid; clear smooth boundary.
C—45 to 60 inches; yellowish brown (10YR 5/6) sand; single grained; loose; strongly acid.

The thickness of the solum ranges from 25 to 50 inches. Reaction ranges from strongly acid to slightly acid throughout. The Ap horizon has hue of 10YR or 7.5YR, value of 3, and chroma of 2 or 3. It is dominantly fine sandy loam, but the range includes sandy loam. The A3 horizon, if there is one, has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. It is fine sandy loam or sandy loam. The B horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6. It ranges from fine sandy loam to clay loam. The C horizon has colors similar to those of the B horizon and is fine sandy loam, loamy fine sand, or sand. Thin dark brown lamellae are in some pedons.

Bowdre series

The Bowdre series consists of deep, somewhat poorly drained soils that formed in Mississippi River alluvium. Permeability is slow in the upper part of the profile and moderate in the lower part. Slopes range from 0 to 3 percent.

Bowdre soils are typically on ridgetops in areas adjacent to Commerce, Sharkey, and Tunica soils. Commerce soils do not have a mollic epipedon and are fine-silty. Sharkey soils are clayey throughout the control section and are poorly drained. Tunica soils are deeper (20 to 36 inches) to the contrasting loamy IIC horizon than the Bowdre soils and do not have a mollic epipedon.

A typical pedon of Bowdre silty clay loam, 0 to 3 percent slopes, in a cultivated field about 375 feet north and 2,575 feet east of the southwest corner of section 23, T. 23 N., R. 16 E., in Mississippi County.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate medium granular and moderate fine and medium subangular blocky structure; very firm; few fine roots and pores; neutral; clear smooth boundary.
B2—5 to 17 inches; very dark grayish brown (10YR 3/2) silty clay loam; few fine faint brown (10YR 5/3) mottles; moderate fine and medium subangular blocky structure; very firm; few fine roots and pores; neutral; clear smooth boundary.
IIC1—17 to 30 inches; mottled dark grayish brown (10YR 4/2) and dark brown (10YR 4/3) silt loam; moderate medium granular structure; friable; few fine pores; neutral; clear smooth boundary.
IIC2—30 to 54 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; neutral; clear smooth boundary.
IIC3—54 to 60 inches; grayish brown (2.5Y 5/2) very fine sandy loam; massive; very friable; neutral.

Depth to the underlying loamy alluvium ranges from 12 to 20 inches. Reaction ranges from medium acid to neutral in the A horizon and from slightly acid to moderately alkaline in the B and C horizons. The Ap horizon has hue of 10YR, value of 3, and chroma of 1 or 2. It is dominantly silty clay loam, but the range includes silty clay and clay. The B horizon is similar in color and texture to the A horizon but is mottled in some places in shades of brown or gray. The IIB2 horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4 or is mottled in shades of brown and gray. Texture is very fine sandy loam or silt loam. The IIC horizon has hue of 10YR and 2.5Y, value of 4 to 6, and chroma of 2 to 4 or is mottled in shades of brown or gray. It is very fine sandy loam, silt loam, sandy loam, or loamy sand.

Broseley series

The Broseley series consists of deep, well drained and somewhat excessively drained soils that have moderately rapid permeability. They formed in alluvium on convex, natural levees. Slopes range from 0 to 3 percent.

Broseley soils are commonly adjacent to Bosket, Farrenburg, and Scotco soils. Bosket soils contain less sand, are shallower to the argillic horizon, and generally occupy slightly lower positions on the landscape than the Broseley soils. Farrenburg soils have less sand, occupy lower positions on the landscape, and have grayish mottles above the argillic horizon. Scotco soils are sandy throughout and do not have an argillic horizon.

Typical pedon of Broseley loamy fine sand, 0 to 3 percent slopes, 4,325 feet east and 2,300 feet north of the southwest corner of section 27, T. 27 N., R. 13 W., in Scott County.

Ap—0 to 12 inches; brown (10YR 4/3) loamy fine sand; weak fine granular structure; soft, very friable; few fine roots; medium acid; clear smooth boundary.
A2—12 to 33 inches; dark yellowish brown (10YR 4/4) loamy fine sand; weak fine granular structure; very friable; few fine roots; medium acid; clear smooth boundary.
B21t—33 to 38 inches; brown (7.5YR 4/4) fine sandy loam; weak fine subangular blocky structure; very friable, few fine roots; sand grains coated with clay; medium acid; clear smooth boundary.
B22t—38 to 46 inches; dark yellowish brown (10YR 4/4) sandy clay loam; moderate fine subangular blocky structure; friable; patchy clay films on faces of some peds; medium acid; clear smooth boundary.
B3—46 to 56 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; medium acid; clear smooth boundary.
C—56 to 60 inches; yellowish brown (10YR 5/4) loamy fine sand; single grained; loose; thin strata of dark yellowish brown (10YR 4/4) fine sandy loam; medium acid.

The thickness of the solum ranges from 48 to 62 inches. Total thickness of the A horizon and depth to the top of the Bt horizon is 24 to 36 inches. Reaction ranges from strongly acid to slightly acid in the subsoil. The A horizon has color hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 to 4. It is dominantly loamy fine sand, but the range includes loamy sand. The B horizon has hue of 10YR, 7.5YR, or 5YR; value of 4 or 5; and chroma of 3 or 4. It is sandy clay loam or fine sandy loam. Some pedons do not have a B3 horizon. The C horizon has hue of 10YR, value of 4 to 6, and chroma of 3 or 4. Texture is loamy fine sand or loamy sand. Thin strata have textures of fine sandy loam or sandy loam and make up 5 to 20 percent of the horizon.

Bucklick series

The Bucklick series consists of deep, well drained, moderately permeable soils on uplands. They formed in limestone and dolomite residuum that has a thin loess cap. Slopes range from 5 to 20 percent.

Bucklick soils are adjacent to Haymond and Menfro soils. Haymond soils are coarse-silty and formed in alluvium on creek bottoms. Menfro soils are fine-silty and formed in loess.

Typical pedon of Bucklick silt loam from an area of Menfro-Bucklick silt loams, 9 to 14 percent slopes, about 600 feet north and 500 feet west of the southeast corner, section 5, T. 33 N., R. 12 E., in Cape Girardeau County.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; friable; common very fine and fine roots; neutral; abrupt smooth boundary.
B1t—6 to 13 inches; yellowish red (5YR 5/6) silty clay loam; weak fine subangular blocky structure; firm; few fine roots; thin patchy yellowish red (5YR 4/6) clay films on faces of peds; strongly acid; abrupt smooth boundary.
B21t—13 to 33 inches; yellowish red (5YR 4/6) silty clay; moderate fine and medium subangular blocky structure; firm; few fine roots; thin continuous reddish brown (5YR 4/4) clay films on faces of peds; few black stains; strongly acid; clear smooth boundary.
B22t—33 to 51 inches; red (2.5YR 4/6) silty clay; moderate fine and medium subangular blocky structure; firm; many thin reddish brown (2.5YR 4/4) clay films on faces of peds; few black stains; neutral.
R—51 inches; Hard limestone.

The thickness of the solum ranges from 40 to 60 inches. Depth to hard limestone ranges from 40 to 60 inches. Limestone fragments range from 0 to 20 percent in the lower part of the B2t horizon and in the C horizon if there is one. Reaction throughout the soil is strongly acid to neutral. The A horizon has hue of 10YR and 7.5YR, value of 3 to 5, and chroma of 3 or 4. Texture is dominantly silt loam and rarely silty clay loam. The B horizon has hue of 7.5YR to 2.5YR, value of 4 or 5, and chroma of 4 to 8. Texture is silty clay loam, silty clay, or clay. The C horizon, if there is one, has colors similar to those of the B horizon or is variegated. It is silt loam or clay.

Cairo series

The Cairo series consists of deep, poorly drained, very slowly permeable soils underlain by rapidly permeable sandy alluvium. These soils formed in clayey sediments over sand in areas along abandoned streams. Slopes range from 0 to 2 percent.

Cairo soils are similar to Cooter soils and are commonly adjacent to Diehlstadt, Cooter, and Sikeston soils. Diehlstadt soils are sandy throughout. Cooter soils have a thinner deposit of clayey sediment than Cairo soils, and Sikeston soils are fine-loamy.

Typical pedon of Cairo silty clay, 1,625 feet east and 65 feet south of the northwest corner of section 4, T. 27 N., R. 13 E., in Scott County.

Ap—0 to 9 inches; black (N 2/) silty clay; moderate medium angular and subangular blocky structure; firm; few fine roots; slightly acid; gradual smooth boundary.
A12—9 to 18 inches; black (N 2/) silty clay; few fine distinct strong brown (7.5YR 5/6) mottles; moderate medium blocky structure; firm; few fine roots; slightly acid; clear smooth boundary.
B2—18 to 30 inches; very dark gray (10YR 3/1) silty clay; common fine distinct dark yellowish brown (10YR 4/4) and strong brown (7.5YR 5/6) mottles; moderate medium blocky structure; firm; slightly acid; abrupt smooth boundary.
IIC—30 to 60 inches; variegated strong brown (7.5YR 5/6), yellowish brown (10YR 5/4), and grayish brown (10YR 5/2) loamy fine sand; single grained; very friable; slightly acid.

The thickness of the solum and depth to the sandy IIC horizon range from 20 to 40 inches. Reaction ranges from slightly acid to mildly alkaline throughout. Thickness of the mollic epipedon ranges from 12 to 31 inches. The A horizon has hue of 10YR or is neutral, value of 2 or 3, and chroma of 0, 1, or 2. It is dominantly silty clay, but the range includes clay. The B2 horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1. It is silty clay or clay. Mottles in shades of gray and brown are common. The B3 horizon, if there is one, has colors similar to those of the B2 horizon and is silty clay loam or sandy clay loam. The IIC horizon has hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 1 to 6. In some pedons the IIC horizon is neutral in hue. It is loamy fine sand or sand and may have thin strata of silt loam and sandy loam. Mottles are in shades of brown or gray.

Caruthersville series

The Caruthersville series consists of deep, moderately well drained, moderately permeable soils that formed in recent loamy and silty alluvium along the Mississippi River. Slopes range from 0 to 3 percent.

The Caruthersville soils in this survey area are not calcareous below a depth of 10 inches as is defined as the range for the Caruthersville series. This difference, however, does not alter the use or behavior of the soil.

The Caruthersville soils are adjacent to Commerce, Crevasse, and Steele soils. Commerce soils are fine-silty and are somewhat poorly drained. Crevasse soils have a sandy control section, and Steele soils are sandy over clayey.

A typical pedon of Caruthersville very fine sandy loam, 0 to 3 percent slopes, in a cultivated field about 6 miles north of Charleston, approximately 1,000 feet east and 1,000 feet north of the southwest corner of section 9, T. 27 N., R. 16 E., in Mississippi County.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) very fine sandy loam; weak fine granular structure; very friable; common fine roots; neutral; clear smooth boundary.

A12—8 to 13 inches; mixed dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) very fine sandy loam; weak fine granular structure; very friable; few very fine roots; neutral; abrupt smooth boundary.

C1—13 to 28 inches; dark grayish brown (2.5Y 4/2) very fine sandy loam; massive; very friable; few very fine roots and pores; many worm casts; stratified; neutral; abrupt smooth boundary.

C2—28 to 51 inches; grayish brown (10YR 5/2) very fine sandy loam; massive; very friable; common very fine pores; stratified; mildly alkaline; clear smooth boundary.

C3—51 to 60 inches; mixed dark grayish brown (10YR 4/2), grayish brown (10YR 5/2), and brown (10YR 5/3) stratified very fine sandy loam and silt loam; massive; very friable; few very fine pores; mildly alkaline; weak effervescence.

Reaction ranges from neutral to mildly alkaline throughout. The Ap horizon has color in hue of 10YR, value of 3 to 5, and chroma of 2. The dry color value is 6 or more. The Ap horizon is dominantly very fine sandy loam, but the range includes silt loam and fine sandy loam. Colors of the C horizon below a depth of 10 inches, are often mixed or are mottled. The upper part of the C horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2. The lower part of the C horizon has colors similar to those of the upper part but includes light brownish gray (10YR 6/2). Mottles in the C horizon range from few to common and from faint to distinct and have hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 1 to 4. Texture of the C horizon is typically very fine sandy loam or silt loam, but in many places the lower part of the profile below a depth of 40 inches is stratified with horizons of loamy very fine sand, loam, very fine sand, or fine sand.

Clana series

The Clana series consists of deep, moderately well drained soils on old natural levees or terraces. These soils formed in sandy alluvium under the influence of a fluctuating water table. Slopes range from 0 to 2 percent.

Clana soils are adjacent to Diehlstadt, Lilbourn, Malden, and Sikeston soils. Diehlstadt soils are somewhat poorly drained, have a mollic epipedon, and are in depressions. Lilbourn soils have less sand than Clana soils and are somewhat poorly drained. Both Diehlstadt and Lilbourn soils are somewhat lower on the landscape. Malden soils are excessively drained, do not have mottles in chroma of 2 or less to a depth of less than 40 inches, and are on the higher elevations. Sikeston soils are fine-loamy and are poorly drained.

Typical pedon of Clana loamy fine sand, in a cultivated field about 1,300 feet west and 65 feet north of the southeast corner of section 14, T. 26 N., R. 15 E., in Mississippi County.

Ap—0 to 7 inches; dark brown (10YR 4/3) loamy fine sand, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; few fine roots; slightly acid; abrupt smooth boundary.

B21—7 to 15 inches; dark yellowish brown (10YR 4/4) loamy fine sand; common fine distinct very dark grayish brown (7.5YR 3/2), common fine faint pale brown (10YR 6/3), and common fine faint grayish brown (10YR 5/2) mottles; weak subangular blocky structure; very friable; few very fine roots; very slightly acid; clear smooth boundary.

B22—15 to 33 inches; yellowish brown (10YR 5/4) loamy fine sand; common medium faint light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; very friable; slightly acid; clear smooth boundary.

C—33 to 60 inches; dark yellowish brown (10YR 4/4) loamy fine sand; common medium distinct very dark grayish brown (7.5YR 3/2) and common fine faint light brownish gray (10YR 6/2) mottles; single grained; loose; medium acid.

Thickness of the solum ranges from 28 to more than 60 inches. Reaction ranges from medium acid to neutral throughout. The A horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 or 3. Dry color values are more than 5.5. The A horizon is dominantly loamy fine sand, but the range includes loamy sand. The B horizon has hue of 10YR and 7.5YR, value of 4 or 5, and chroma of 3 to 6. It is loamy fine sand or loamy sand. Mottles are few or common and have value of 3 to 5 and chroma of 2 to 6 in hue of 10YR or they have value of 3 or 4 and chroma of 2 in hue of 7.5YR. In some pedons the B1 horizon does not have grayish mottles. The C horizon has hue of 10YR and 7.5YR, value of 4 to 6, and chroma of 2 to 6. Horizons with matrix chroma of 3 or more have mottles with chroma of 2 or less. Texture is loamy fine sand, loamy sand, or sand.

Clarksville series

The Clarksville series consists of deep, somewhat excessively drained, moderately rapidly permeable soils on uplands. They formed in cherty limestone and cherty dolomite residuum. Slopes range from 20 to 60 percent.

Clarksville soils are adjacent to Elsah and Menfro soils. Elsah soils do not have an argillic horizon and are on narrow stream bottoms. Menfro soils are fine-silty and formed in deep loess.

Typical pedon of Clarksville cherty silt loam, from a wooded area of Menfro-Clarksville complex, 20 to 60 percent slopes, 600 feet north and 650 feet west of the southeast corner of section 15, T. 32 N., R. 13 E., in Cape Girardeau County.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) cherty silt loam; moderate fine granular structure; very friable; many fine roots; 15 percent by volume angular chert; very strongly acid; clear smooth boundary.

A2—3 to 8 inches; yellowish brown (10YR 5/4) cherty silt loam; weak fine granular structure; very friable; many fine roots; 25 percent by volume chert fragments; very strongly acid; clear smooth boundary.

B21t—8 to 20 inches; strong brown (7.5YR 5/6) very cherty silt loam; moderate medium granular structure; friable; common fine roots; thin patchy clay films on some peds and in root channels; 85 percent by volume angular chert fragments; very strongly acid; gradual wavy boundary.

B22t—20 to 39 inches; strong brown (7.5YR 5/6) very cherty silty clay loam; moderate medium granular structure; firm; thin patchy clay films on faces of some peds; 50 percent by volume angular chert fragments; very strongly acid; clear irregular boundary.

B3t—39 to 60 inches; yellowish red (5YR 5/8) very cherty silty clay; moderate medium granular structure; firm; thin patchy clay films on some peds; 70 percent by volume angular chert fragments; very strongly acid.

The thickness of the solum ranges from about 60 inches to more than 100 inches. Reaction throughout the soil is very strongly acid or strongly acid. The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. The dark colored surface layer is generally less than 4 inches thick. Textures are dominantly cherty silt loam, but the range includes very cherty silt loam. Chert content ranges from 20 to 50 percent. The B horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. Textures are cherty silt loam, cherty silty clay loam, cherty silty clay, or their very cherty counterparts. Chert content ranges from 35 to 85 percent by volume.

Commerce series

The Commerce series consists of deep, somewhat poorly drained, moderately slowly permeable soils that formed in recent silty alluvium along the Mississippi River. Slopes range from 0 to 2 percent.

Commerce soils are similar to Mhoon soils and are adjacent to Caruthersville, Jackport, Mhoon, and Sharkey soils on the landscape. Caruthersville soils are coarse-silty, are moderately well drained, and are on a higher position on the landscape than Commerce soils. Jackport soils are clayey in the control section and are poorly drained. Mhoon soils have chroma of 1 between the Ap horizon and a depth of 20 inches and are poorly drained. Sharkey soils are clayey throughout the control section and are poorly drained. Mhoon and Sharkey soils are on the lower part of the landscape.

A typical pedon of Commerce silty clay loam, in a cultivated field about 800 feet east and 300 feet south of the northwest corner of section 16, T. 27 N., R. 16 E., in Mississippi County.

Ap—0 to 12 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; few fine roots; few very fine pores; neutral; clear smooth boundary.

B2—12 to 23 inches; mixed dark grayish brown (10YR 4/2) silt loam; common fine faint dark brown (10YR 4/3) mottles; weak fine granular structure; friable; few very fine roots; common very fine pores; neutral; clear smooth boundary.

C1—23 to 40 inches; dark grayish brown (10YR 4/2) silty clay loam; few fine faint gray (10YR 5/1) and yellowish brown (10YR 5/4) mottles; medium subangular blocky fragments; firm; common very fine pores; neutral; clear smooth boundary.

C2—40 to 60 inches; mixed gray (10YR 5/1) and grayish brown (10YR 5/2) silty clay loam; few fine faint yellowish brown (10YR 5/4) mottles; medium subangular blocky fragments; very firm; few pressure faces; few very fine pores; neutral.

The thickness of the solum ranges from 20 to 40 inches. Reaction of the A horizon ranges from medium acid to mildly alkaline. Reaction of the B horizon ranges from slightly acid to moderately alkaline, and in the C horizon it ranges from neutral to moderately alkaline. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. It is dominantly silty clay loam, but the range includes silt loam and very fine sandy loam. The B horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. Brownish and grayish mottles are few to common. Texture is silt loam or silty clay loam. The C horizon has hue of 10YR and 2.5Y, value of 4 or 5, and chroma of 1 or 2. Mottles that are brownish or grayish are few to common. Texture is commonly stratified silty clay loam, silty clay, silt loam, or very fine sandy loam. The horizon is calcareous in many places.

Cooter series

The Cooter series consists of deep, moderately well drained soils along channels and braided streams dissecting older natural levees of the Mississippi River. They formed in alluvial deposits. Permeability is slow in the upper part but is rapid to very rapid in the sandy lower part. Slopes range from 0 to 2 percent.

Cooter soils are commonly adjacent to Cairo, Diehlstadt, and Sikeston soils. Cairo soils have 20 to 40 inches of clay over sand. Diehlstadt soils are sandy throughout. Sikeston soils are fine-loamy.

Typical pedon of Cooter silty clay loam, 2,790 feet south and 665 feet west of the northeast corner of section 15, T. 27 N., R. 13 E., in Scott County.

Ap—0 to 4 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; weak fine granular structure; very friable, slighty sticky and slightly plastic; few fine roots; slightly acid; clear smooth boundary.

A12—4 to 18 inches; black (10YR 2/1) silty clay; weak very fine and fine subangular blocky structure; firm, sticky and plastic; few fine roots; slightly acid; abrupt smooth boundary.

IIC1—18 to 36 inches; very dark grayish brown (10YR 3/2), dark grayish brown (10YR 4/2), brown (10YR 5/3), and dark brown (10YR 4/3) stratified sand; common fine faint grayish brown (10YR 5/2) and yellowish brown (10YR 5/4) mottles; single grained; loose; slightly acid; clear smooth boundary.

IIC2—36 to 50 inches; dark yellowish brown (10YR 4/4) sand; single grained; loose; neutral; clear smooth boundary.

IIC3—50 to 60 inches; very dark grayish brown (10YR 3/2) sand; single grained; loose; very dark gray (10YR 3/1) sandy loam strata; slightly acid.

Depth to the contrasting IIC horizon ranges from 14 to 24 inches. Reaction ranges from slightly acid to mildly alkaline throughout the soil. The A horizon has colors in hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is dominantly silty clay loam, but the range includes silty clay. The IIC1 horizon has value of 4 or 5 and chroma of 2 or 3. If the chroma is 3, mottles in chroma of 2 or less are present. The lower part of the IIC horizon has value of 4 to 6 and chroma of 2 to 6. The IIC horizon is loamy sand, sand, or coarse sand. In some pedons there are thin strata of finer textures below a depth of 40 inches.

Crevasse series

The Crevasse series consists of deep, excessively drained, rapidly permeable soils. These soils formed in alluvial sediments along levee breaks and stream channels of the Mississippi River. Slopes range from 0 to 3 percent.

Crevasse soils are adjacent to Caruthersville and Steele soils. Caruthersville soils are coarse-silty and are moderately well drained. Steele soils are sandy over clayey and are moderately well drained.

Typical pedon of Crevasse sandy loam from an area of Crevasse soils, in a cultivated field about 4,800 feet south of the northwest corner of section 5, T. 22 N., R. 17 E., in Mississippi County.

Ap—0 to 3 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; loose; few very fine roots; neutral; abrupt smooth boundary.

C1—3 to 20 inches; brown (10YR 5/3) sand; single grained; loose; few very fine roots to a depth of 10 inches; neutral; clear smooth boundary.

C2—20 to 60 inches; brown (10YR 5/3) fine sand; single grained; loose; neutral.

Reaction ranges from neutral to moderately alkaline in the Ap and C horizons. The A horizon is dark grayish brown (10YR 4/2) or grayish brown (10YR 5/2) sand, loamy sand, loamy fine sand, sandy loam, or silt loam. The C horizon is brown (10YR 5/3) or grayish brown (10YR 5/2). Texture is fine sand or sand.

Diehlstadt series

The Diehlstadt series consists of deep, somewhat poorly drained soils that have moderate or moderately rapid permeability in the surface and subsurface horizons and rapid permeability in the substratum. These soils formed in sandy and loamy alluvial deposits in depressional areas and along tributary stream channels on old flood plains of the Mississippi River. Slopes range from 0 to 2 percent.

Diehlstadt soils are near Cairo, Cooter, and Sikeston soils. Cairo soils have 20 to 40 inches of clay over sand. Cooter soils have 12 to 24 inches of clay over sand. Sikeston soils are fine-loamy.

Typical pedon of Diehlstadt loamy coarse sand, in a cultivated field, about 7,005 feet north and 1,176 feet east of the southwest corner of section 2, T. 27 N., R. 13 E., in Scott County.

Ap—0 to 7 inches; black (10YR 2/1) loamy coarse sand, very dark gray (10YR 3/1) dry; weak very fine subangular blocky structure; very friable; many fine herbaceous roots; strongly acid; clear smooth boundary.

A12—7 to 18 inches; black (10YR 2/1) loamy coarse sand, dark gray (10YR 4/1) dry; weak very fine granular structure; very friable; common fine herbaceous roots; medium acid; gradual smooth boundary.

C1—18 to 30 inches; very dark gray (10YR 3/1) fine sand, light brownish gray (10YR 6/2) dry; single grained; loose; few fine herbaceous roots; medium acid; clear smooth boundary.

C2—30 to 48 inches; mixed strong brown (7.5YR 5/6), brown (10YR 5/3), and pale brown (10YR 6/3) fine sand with thin strata of coarse and very coarse sand; common fine distinct yellowish red (5YR 5/8), mottles; single grained; loose; slightly acid; clear smooth boundary.

C3—48 to 60 inches; brown 7.5YR 4/4) fine sand; single grained; loose; slightly acid.

The thickness of the solum and the thickness of the mollic epipedon range from 12 to 24 inches. Reaction ranges from strongly acid to neutral in the surface horizon and below this it is medium acid to neutral. Sand grains immediately below the mollic epipedon are uncoated. Horizons of coarse sand occasionally occur, but generally they are only thin strata. In some pedons there are thin horizons and pockets of loamy material or thin horizons or pockets of concretions and oxides (iron and manganese) below a depth of 40 inches.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. In some pedons there is an A2 horizon. It is dominantly loamy coarse sand or sandy clay loam, but the range includes loamy sand, sandy loam, and loam. The C1 horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 1 or 2. Mottles, where present, have hue of 10YR to 2.5YR, value of 3 to 5, and chroma of 3 to 6. Typically, the C1 horizon is fine sand or sand, but the range includes loamy sand or coarse sand. The C2 horizon and subsequent horizons typically have hue of 10YR or 2.5Y, but in places the hue is 7.5YR. Value is 3 to 6 and chroma is 1 to 6. Mottles have hue of 10YR to 2.5YR, value of 3 to 5, and chroma of 3 to 6. The C2 horizon and subsequent horizons are typically fine sand or sand.

Dubbs series

The Dubbs series consists of deep, well drained soils that have moderate permeability. These soils formed in alluvium on old natural levees and terraces. Slopes range from 0 to 2 percent.

Dubbs soils are adjacent to Bosket, Broseley, and Dundee soils. Bosket soils are fine-loamy. Broseley soils are loamy and are deeper to the argillic horizon than Dubbs soils. Dundee soils have colors in chroma of 2 in the control section.

Typical pedon of Dubbs silt loam, about 990 feet south and 1,320 feet west of the northeast corner of section 19, T. 26 N., R. 14 E., in Scott County.

Ap—0 to 9 inches; dark brown (10YR 4/3) silt loam; moderate fine granular structure; friable; many fine roots; neutral; clear smooth boundary.

B21t—9 to 13 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; many fine roots; few patchy clay films; medium acid; gradual smooth boundary.

B22t—13 to 24 inches; dark brown (10YR 4/3) silty clay loam; strong fine and medium angular and subangular blocky structure; firm; thin distinct clay films on faces of peds; common fine roots; many fine pores; very strongly acid; gradual smooth boundary.

B23t—24 to 40 inches; dark brown (10YR 4/3) loam; weak fine prismatic structure parting to moderate fine and medium angular and subangular blocky structure; firm; thin distinct clay films on some vertical surfaces; common fine roots; many fine pores; very strongly acid; clear smooth boundary.

IIC1—40 to 48 inches; yellowish brown (10YR 5/4) loamy sand; weak fine and medium subangular blocky structure; very friable; common fine roots; very strongly acid; gradual smooth boundary.

IIC2—48 to 60 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; thin dark yellowish brown (10YR 4/4) silt loam lamellae; strongly acid.

The thickness of the solum ranges from 30 to 50 inches. Reaction ranges from very strongly acid to medium acid, except where the soil is limed. The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. If it has value of 3 and chroma of 2 or 3, it is less than 7 inches thick. The Ap horizon is dominantly silt loam, but the range includes very fine sandy loam and loam. The B horizon has hue of 7.5YR and 10YR, value of 3 to 5, and chroma of 3 to 6. Texture is silt loam, silty clay loam, clay loam, or loam. The B3 horizon, if there is one, is fine sandy loam, loam, or very fine sandy loam. The C horizon has hue of 10YR and 7.5YR, value of 4 to 6, and chroma of 3 or 4. It is sand, loamy sand, loamy fine sand, or sandy loam.

Dundee series

The Dundee series consists of deep, somewhat poorly drained, moderately slowly permeable soils on old natural levees and terraces. These soils formed in thinly stratified beds of silty alluvium. Slopes range from 0 to 2 percent.

Dundee soils are associated with Dubbs, Jackport, and Lilbourn soils. Dubbs soils do not have gray colors in the upper part of the Bt horizon and are on higher positions on the landscape than Dundee soils. Jackport soils are poorly drained and are 60 percent or more clay in the control section. Lilbourn soils are coarse-loamy in the control section and do not have an argillic horizon.

Typical pedon of Dundee silt loam in a cultivated field about 2,600 feet north and 100 feet west of the southeast corner of section 3, T. 29 N., R. 11 E., in Cape Girardeau County.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; strongly acid; abrupt smooth boundary.

B21t—8 to 14 inches; mottled brown (10YR 5/3), yellowish brown (10YR 5/4), and light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky structure; friable; few patchy clay films; few black concretions; very strongly acid; clear smooth boundary.

B22t—14 to 29 inches; grayish brown (10YR 5/2) silty clay loam; weak fine subangular blocky structure; firm; few thin clay films on faces of peds; few black concretions; very strongly acid; clear wavy boundary.

B23t—29 to 42 inches; grayish brown (2.5Y 5/2) silty clay loam; common fine distinct pale brown (10YR 6/3) mottles; weak fine subangular blocky structure; firm; few thin clay films on faces of peds; very strongly acid; gradual wavy boundary.

C—42 to 60 inches; mixed brown (10YR 5/3) and grayish brown (2.5Y 5/2) silt loam; massive; friable; few black (10YR 2/1) accumulations of iron and manganese; very strongly acid.

The thickness of the solum ranges from 24 to 42 inches. Reaction ranges from medium acid to very strongly acid throughout the profile, except where the surface horizon has been limed. The A horizon has value of 4 or 5 and chroma of 2 or 3 in hue of 10YR. It is dominantly silt loam, but the range includes loam and fine sandy loam. The Bt horizon has hue of 10YR and 2.5Y, value of 4 or 5, and chroma of 2 or it is mottled gray and brown. Texture is silt loam or silty clay loam. The C horizon has colors of grayish brown (10YR 5/2 or 2.5Y 5/2) with brownish mottles or it is mixed gray and brown. The texture is silt loam or silty clay loam.

Elsah series

The Elsah series consists of deep, somewhat excessively drained, moderately rapidly permeable soils on narrow stream bottoms. They formed in loamy alluvial sediments high in content of chert fragments. Slopes range from 0 to 3 percent.

Elsah soils are commonly adjacent to Clarksville and Haymond soils on the landscape. Clarksville soils are steep and formed in cherty limestone residuum on uplands. Haymond soils are well drained and are less than 20 percent coarse fragments.

A typical pedon of Elsah silt loam, 0 to 3 percent slopes, about 1,390 feet east and 500 feet north of the southwest corner of section 2, T. 31 N., R. 13 E., in Cape Girardeau County.

A1—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; common fine pores; neutral; gradual wavy boundary.

C1—6 to 20 inches; dark yellowish brown (10YR 4/4) silt loam; massive breaking to platy fragments; friable; 5 to 10 percent coarse fragments; common fine roots and pores; neutral; clear wavy boundary.

IIC2—20 to 38 inches; dark yellowish brown (10YR 4/4) very cherty loam; massive; faintly stratified; about 75 percent coarse fragments; few fine roots; many fine pores; medium acid; clear wavy boundary.

IIC3—38 to 60 inches; dark yellowish brown (10YR 4/4) very cherty silt loam; massive; firm; faintly stratified; about 65 percent coarse fragments; common fine black stains; medium acid; clear wavy boundary.

Reaction ranges from neutral to medium acid throughout the profile. Chert content ranges from 0 to 20 percent in the A horizon and from 35 to 80 percent throughout the C horizon. The A horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. It is dominantly silt loam, but the range includes cherty silt loam. The IIC horizon has color value of 4 or 5 and chroma of 3 or 4 in hue of 7.5YR or 10YR. The texture is cherty silt loam, cherty loam, or their very cherty counterparts.

Falaya series

The Falaya series consists of deep, somewhat poorly drained, moderately permeable soils on flood plains. They formed in silty alluvium washed from the nearby loess-covered uplands. Slopes range from 0 to 2 percent.

Falaya soils are similar to Wakeland soils and are commonly adjacent to Adler, Memphis, and Menfro soils on the landscape. Adler soils do not have the dominant chroma of 2 below the A horizon and are at slightly higher elevations than Falaya soils. Memphis and Menfro soils are fine-silty and are on uplands. Wakeland soils have a mesic temperature regime.

Typical pedon of Falaya silt loam, in a cultivated field about 1,500 feet south and 165 feet west of the northeast corner of section 25, T. 30 N., R. 12 E., in Cape Girardeau County.

Ap—0 to 6 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.

C1g—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam; few fine distinct dark brown (7.5YR 3/2) mottles; moderate thick platy structure; friable; few fine dark brown iron concretions; common thick grayish brown silt coatings on ped faces; many fine pores; common fine roots and worm casts; strongly acid; clear smooth boundary.

C2g—10 to 29 inches; dark grayish brown (10YR 4/2) silt loam; few fine faint dark yellowish brown (10YR 4/4) mottles; massive breaking to subangular blocky fragments; very friable; many fine pores; strongly acid; clear wavy boundary.

C3g—29 to 48 inches; grayish brown (10YR 5/2) silt loam; common fine distinct dark yellowish brown (10YR 4/4) mottles; massive breaking to subangular blocky fragments; friable; few fine roots; many fine pores; strongly acid; clear wavy boundary.

C4g—48 to 60 inches; grayish brown (2.5Y 5/2) silt loam; common fine distinct yellowish brown (10YR 5/6) mottles; massive breaking to subangular blocky fragments; friable; stratified; few fine pores; strongly acid.

Reaction is very strongly acid or strongly acid throughout the profile, except where the surface horizon has been limed. The A horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. Some pedons have brownish stains or mottles in the lower part of the A horizon. The C horizon has hue of 10YR, value of 4 or 5, and chroma of 2. Mottles that have values of 3 to 6 and chroma of 2 to 6 are in most pedons.

Farrenburg series

The Farrenburg series consists of deep, moderately well drained, moderately permeable soils on natural levees. They formed in loamy alluvium. Slopes range from 0 to 2 percent.

Farrenburg soils are commonly adjacent to Broseley, Lilbourn, Sharkey, and Sikeston soils. Broseley soils have less clay in the argillic horizon and are on higher terrace positions than Farrenburg soils. Lilbourn soils are coarse-loamy and are on the slightly lower positions. Sharkey soils are clayey throughout and are in old slack water areas and depressions. Sikeston soils have a thick mollic surface horizon and are on old stream bottoms and depressions.

Typical pedon of Farrenburg fine sandy loam, 1,100 feet west and 400 feet south of the northeast corner of section 30, T. 27 N., R. 13 E., in Scott County.

Ap—0 to 8 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; common fine roots; neutral; clear smooth boundary.

A21—8 to 20 inches; yellowish brown (10YR 5/4) fine sandy loam; common fine distinct dark yellowish brown (10YR 3/4) and few fine distinct light brownish gray (10YR 6/2) mottles; weak fine granular structure; very friable; few fine roots; neutral; clear smooth boundary.

A22—20 to 32 inches; yellowish brown (10YR 5/4) fine sandy loam; common fine distinct light brownish gray (10YR 6/2) mottles; weak fine subangular blocky structure; very friable; slightly acid; clear smooth boundary.

B21t—32 to 40 inches; dark yellowish brown (10YR 4/4) sandy clay loam; common fine distinct light brownish gray (10YR 6/2) mottles; weak fine subangular blocky structure; friable; thin patchy clay films on faces of some peds; strongly acid; clear smooth boundary.

B22t—40 to 52 inches; yellowish brown (10YR 5/4) sandy clay loam; common medium distinct light brownish gray (10YR 6/2) mottles; moderate fine subangular blocky structure; friable; thin patchy clay films on faces of some peds; very strongly acid; clear smooth boundary.

B3—52 to 60 inches; mottled brown (7.5YR 5/4) and light brownish gray (10YR 6/2) sandy loam; weak fine subangular blocky structure; friable; very strongly acid.

The thickness of the solum ranges from about 30 to 66 inches. The reaction of the A horizon ranges from very strongly acid to slightly acid, except where limed. The reaction of the B horizon ranges from very strongly acid to slightly acid, and in the IIC horizon it ranges from medium acid to neutral. The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 3 or 4. Dry value is 6 or more. It is dominantly fine sandy loam, but the range includes loamy fine sand. The lower part of the A horizon may have mottles of brown or gray. The B21t horizon has hue of 10YR and 7.5YR, value of 4 or 5, and chroma of 3 to 6 and is mottled with colors in chroma of 1 or 2. The B22t horizon has hue of 10YR and 7.5YR, value of 4 to 6, and chroma of 2 to 6. If the matrix has chroma of 3 or more, mottles with chroma of 2 are present. The B horizon is loam, sandy clay loam, or clay loam. The IIC horizon, if there is one, has hue of 10YR, value of 4 to 6, and chroma of 2 to 6. It is fine sandy loam, loamy sand, or sand.

Haymond series

The Haymond series consists of deep, well drained, moderately permeable soils on bottom land. They formed in silty alluvium washed from the surrounding loess-covered uplands. Slopes range from 0 to 2 percent.

Haymond soils are adjacent to Elsah, Wakeland, and Wilbur soils. Elsah soils have a loamy-skeletal control section and are along narrow drainageways. Wakeland soils have dominant colors in chroma of 2 below the surface layer and are in slightly higher positions next to the uplands than Haymond soils. Wilbur soils have mottles in chroma of 2 within 20 inches of the surface and are in slightly depressional areas.

Typical pedon of Haymond silt loam, frequently flooded, in a cultivated field about 1,800 feet south and 2,400 feet east of the northwest corner of section 23, T. 31 N., R. 13 E., in Cape Girardeau County.

Ap—0 to 6 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; few fine roots and pores; neutral; clear smooth boundary.

C1—6 to 17 inches; dark brown (10YR 4/3) silt loam; massive; friable; common fine roots and worm casts; few fine pores; neutral; clear wavy boundary.

C2—17 to 46 inches; mixed dark brown (10YR 4/3) and brown (10YR 5/3) silt loam; massive; friable; few thin coarse silt coatings on ped faces in the lower part; few fine roots and worm casts; common fine pores; slightly acid; gradual wavy boundary.

C3—46 to 60 inches; brown (10YR 5/3) silt loam; common medium distinct pale brown (10YR 6/3) mottles; massive; friable; few dark brown coarse strata with concretions; medium acid.

Reaction ranges from medium acid to neutral throughout. The A horizon has colors in hue of 10YR, value of 4 or 5, and chroma of 3. The C horizon has value of 4 or 5 and chroma of 3 or 4. In some pedons there are mottles below a depth of 30 inches.

Holstein series

The Holstein series consists of deep, well drained, moderately permeable soils on side slopes of the uplands. They formed in material weathered from sandstone, limestone, and shale. Slopes range from 9 to 20 percent.

Holstein soils are associated with Menfro, Peridge, and Poynor soils. Menfro soils have fine-silty control sections and formed in deep loess. Peridge soils have fine-silty control sections and formed in thin loess underlain by cherty limestone residuum. Poynor soils have a loamy-skeletal over clayey control section and formed in residuum of cherty limestone, cherty dolomite, and shale.

Typical pedon of Holstein loam, 14 to 20 percent slopes, 1,120 feet north and 1,350 feet east of the southwest corner of section 2, T. 32 N., R. 11 E., in Cape Girardeau County.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) loam; weak fine subangular blocky structure; very friable; many roots; slightly acid; abrupt wavy boundary.

A12—2 to 5 inches; brown (10YR 5/3) loam; weak fine subangular blocky structure; very friable; many roots; slightly acid; abrupt smooth boundary.

A2—5 to 12 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; friable; common roots; 10 percent coarse fragments of sandstone; slightly acid; abrupt smooth boundary.

B21t—12 to 24 inches; yellowish red (5YR 5/6) clay loam; moderate medium subangular blocky structure; firm; thin patchy yellowish red (5YR 5/6) clay films; strongly acid; clear wavy boundary.

B22t—24 to 39 inches; yellowish red (5YR 5/6) sandy clay loam; few fine distinct dark red (2.5YR 3/6) mottles; moderate medium subangular blocky structure; firm; thin patchy yellowish red (5YR 5/6) clay films; strongly acid; clear wavy boundary.

B23t—39 to 55 inches; strong brown (7.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; thin patchy strong brown (7.5YR 5/6) clay films; strongly acid; clear wavy boundary.

B3—55 to 60 inches; strong brown (7.5YR 5/8) loam; massive; friable; strongly acid.

The solum is more than 60 inches thick. Reaction of the A horizon is medium acid or slightly acid, except where limed. Reaction of the B horizon ranges from very strongly acid to medium acid. The content of coarse fragments in the solum is 0 to 10 percent, except in the A horizon, which ranges up to 15 percent. The A horizon has color value of 4 or 5 and chroma of 2 to 4 in hue of 10YR. In some pedons there is a thin dark brown (10YR 3/3) A1 horizon that is less than 5 inches thick. Texture is dominantly loam but the range includes silt loam. The B horizon has color value of 4 or 5 and chroma of 4 to 8 in hue of 5YR or 7.5YR. Texture is clay loam, sandy clay loam, or loam. The upper 20 inches of the argillic horizon averages between 27 and 35 percent clay and more than 15 percent fine sand or coarser.

Iva series

The Iva series consists of deep, somewhat poorly drained, slowly permeable soils on uplands. They formed in loess that is commonly 5 to 10 feet or more in thickness. Slopes range from 2 to 6 percent.

Iva soils are adjacent to Menfro soils. Menfro soils have brown colors throughout and are generally higher in elevation than Iva soils.

Typical pedon of Iva silt loam, 2 to 6 percent slopes, in a cultivated field 2,600 feet north and 2,500 feet east of the southwest corner of section 214, T. 30 N., R. 13 E., in Cape Girardeau County.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.

A2—6 to 15 inches; light brownish gray (2.5Y 6/2) silt loam; weak thin platy breaking to moderate fine granular structure; friable; slightly brittle; common fine roots and pores; few fine concretions; medium acid; clear wavy boundary.

B1g—15 to 30 inches; light brownish gray (2.5Y 6/2) and pale brown (10YR 6/3) silt loam; weak fine subangular blocky structure; friable; few fine roots; common fine pores; few fine iron concretions, very strongly acid; clear smooth boundary.

B21tg—30 to 38 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate fine subangular blocky structure; firm; thin clay films on ped faces; very strongly acid; clear smooth boundary.

B22tg—38 to 52 inches; light brownish gray (2.5Y 6/2) silty clay loam; common fine strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; thin clay films along vertical cracks; very strongly acid; gradual wavy boundary.

B3g—52 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; common fine strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction of the A horizon ranges from very strongly acid to slightly acid, except where limed. Reaction of the B horizon ranges from very strongly acid to medium acid. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2. The A2 horizon, if there is one, has value of 5 or 6 and chroma of 2 or 3. The B horizon has colors in hue of 10YR and 2.5Y, value of 5 or 6, and chroma of 2 to 4. Texture is silt loam or silty clay loam. Mottles range from brown to gray. The C horizon is similar to the B horizon in color and texture.

Jackport series

The Jackport series consists of deep, poorly drained, very slowly permeable soils on old natural levees or low terraces. These soils formed in clayey alluvium in slack water areas along abandoned channels of the Mississippi River. Slopes range from 0 to 2 percent.

Jackport soils are associated with Commerce, Dubbs, Dundee, and Sharkey soils. Commerce soils are fine-silty and are somewhat poorly drained. Dubbs soils are fine-silty and are well drained. Dundee soils are fine-silty and are somewhat poorly drained. Sharkey soils do not have an argillic horizon and are less acid than Jackport soils.

Typical pedon of Jackport silty clay loam in a cultivated field about 1,700 feet south and 400 feet east of the northwest corner of section 29, T. 30 N., R. 12 E., in Cape Girardeau County.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine granular structure; firm; many fine roots; neutral; abrupt smooth boundary.

B21tg—5 to 36 inches; grayish brown (2.5Y 5/2) clay; moderate fine subangular blocky structure; firm; few fine roots; peds have shiny faces; common thin clay films on ped faces; very strongly acid; abrupt smooth boundary.

B22tg—36 to 58 inches; grayish brown (10YR 5/2) clay; moderate fine subangular blocky structure; firm; common thin clay films on ped faces; very strongly acid; abrupt smooth boundary.

C—58 to 63 inches; mottled dark brown (10YR 4/3) and grayish brown (10YR 5/2) silty clay; moderate fine subangular blocky structure; firm; peds have shiny faces; thin lenses of reddish brown (5YR 4/4); slightly acid.

The thickness of the solum ranges from 30 to about 60 inches. The A horizon is strongly acid or medium acid and ranges to mildly alkaline, if limed. The B horizon is very strongly acid or strongly acid, and the C horizon ranges from slightly acid to mildly alkaline. The A horizon has colors in hue of 10YR, value of 4 or 5, and chroma of 2. It is dominantly silty clay loam, but the range includes silty clay. The B horizon has hue of 10YR and 2.5Y, value of 5 or 6, and chroma of 2. Texture is silty clay or clay and averages 60 percent clay or more. Mottles are in shades of brown to red. The C horizon has the same colors as those of the B horizon or is mottled in shades of brown and gray. Texture is silt loam, silty clay loam, or silty clay.

Lilbourn series

The Lilbourn series consists of deep, somewhat poorly drained, moderately permeable soils on old natural terraces of the Mississippi River. These soils formed in loamy alluvium. Slopes range from 0 to 2 percent.

Lilbourn soils are adjacent to Bosket, Clana, Dundee, and Malden soils. Bosket soils are fine-loamy and have an argillic horizon. Clana soils have sandy textures and are on higher positions on the landscape than Lilbourn soils. Dundee soils are fine-silty and have an argillic horizon. Malden soils have sandy textures and are on higher positions on the landscape.

Typical pedon of Lilbourn fine sandy loam, in a cultivated field about 1,000 feet east and 50 feet north of the southwest corner of section 17, T. 26 N., R. 16 E., in Mississippi County.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common fine roots; few fine pores; neutral; abrupt smooth boundary.

A12—9 to 15 inches; very dark grayish brown (10YR 3/2) fine sandy loam, light brownish gray (10YR 6/2) dry; common fine distinct brown (7.5YR 4/4) mottles; weak fine granular structure; friable; few fine roots; common fine pores; few dark concretions (iron and manganese); neutral; clear wavy boundary.

AC—15 to 25 inches; variegated very dark grayish brown (10YR 3/2) and grayish brown (10YR 5/2) fine sandy loam; common fine distinct brown (7.5YR 4/4) mottles; weak fine granular structure; very friable; common fine pores; few fine dark concretions (iron and manganese); slightly acid; abrupt wavy boundary.

C1—25 to 34 inches; variegated dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) fine sandy loam; common medium faint dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky structure; very friable; common fine pores; few fine dark concretions (iron and manganese oxides); medium acid; clear irregular boundary.

IIC2—34 to 48 inches; dark grayish brown (10YR 5/2) silt loam; common medium faint brown (10YR 5/3) and yellowish brown (10YR 5/4) mottles; weak fine subangular blocky structure; friable; common fine pores; few fine dark concretions (iron and manganese oxides); medium acid; clear wavy boundary.

IIC3—48 to 60 inches; variegated grayish brown (10YR 5/2) and brown (10YR 5/3) fine sandy loam; weak fine subangular blocky structure; friable; slightly acid.

Reaction ranges from medium acid to neutral in the A horizon, from medium acid to neutral in the C horizon, and from strongly acid to neutral in the IIC horizon. The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. If chroma and value are 3 or less, dry value is more than 5.5. The A horizon is dominantly fine sandy loam, but the range includes sandy loam. The C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2. Texture is fine sandy loam, sandy loam, or loam. Mottles in shades of brown and gray range from faint to distinct. The IIC horizon has hue of 10YR and 2.5Y, value of 4 to 6, and chroma of 2 to 4. Texture is silt loam in the upper part and fine sandy loam, sandy loam, loamy sand, loamy fine sand, or sand in the lower part.

Malden series

The Malden series consists of deep, excessively drained, rapidly permeable soils that formed in sandy alluvial sediments on old natural terraces along the Mississippi River. Slopes range from 0 to 3 percent.

Malden soils are adjacent to Bosket, Clana, Dubbs, and Lilbourn soils. Bosket soils have a fine-loamy control section and are on lower terraces than Malden soils. Dubbs soils are fine-silty and have an argillic horizon. Clana soils are moderately well drained, have mottles in chroma of 2 to a depth of less than 40 inches, and are on the lower part of the landscape. Lilbourn soils are coarse-loamy and are somewhat poorly drained.

A typical pedon of Malden loamy fine sand, 0 to 3 percent slopes in a cultivated field about 1 1/2 miles west of Charleston and approximately 1,350 feet north and 60 feet west of the southeast corner of section 2, T. 26 N., R. 15 E., in Mississippi County.

Ap—0 to 9 inches; dark brown (10YR 3/3) loamy fine sand, pale brown (10YR 6/3) dry; massive; very friable; common very fine roots; neutral; abrupt smooth boundary.

B2—9 to 54 inches; brown (7.5YR 4/4) loamy fine sand; single grained; loose; very few very fine roots; medium acid; clear smooth boundary.

C—54 to 66 inches; dark yellowish brown (10YR 4/4) fine sand; single grained; loose; strongly acid; clear smooth boundary.

Thickness of the solum ranges from 36 to 60 inches but is commonly 40 to 50 inches. Reaction ranges from strongly acid to slightly acid throughout, except where the surface layer has been limed. The Ap horizon has hue of 10YR or 7.5YR, value of 3, and chroma of 3 or 4. Its texture is dominantly loamy fine sand, but the range includes loamy sand and fine sand. The B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. The texture includes loamy fine sand, loamy sand, and fine sand. The C horizon has the same colors as the B horizon. The texture includes loamy sand, fine sand, and sand. Some pedons have grayish brown or brown mottles below a depth of 48 inches.

Memphis series

The Memphis series consists of deep, well drained, moderately permeable soils that formed on uplands in loess more than 4 feet thick. Slopes range from 2 to 40 percent.

Memphis soils are similar to Menfro soils and are commonly adjacent to Adler and Falaya soils. Menfro soils have a mesic temperature regime. Adler and Falaya soils are coarse-silty and are on bottom land.

Typical pedon of Memphis silt loam, 5 to 9 percent slopes, in a wooded area 1,800 feet north and 40 feet east of the southwest corner of section 4, T. 28 N., R. 13 E., in Scott County.

A1—0 to 3 inches; dark brown (10YR 3/3) silt loam; weak very fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—3 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

B21t—7 to 14 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; very friable; thin patchy clay films on faces of some peds; very strongly acid; gradual smooth boundary.

B22t—14 to 24 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; thin patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

B23t—24 to 40 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; common light gray (10YR 7/2) silt coatings between peds; very strongly acid; gradual smooth boundary.

B3—40 to 60 inches; mixed yellowish brown (10YR 5/6) and brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; friable; patchy clay films on faces of peds; common light gray (10YR 7/2) silt coatings between peds; very strongly acid.

The thickness of the solum ranges from 36 to 70 inches. The soil ranges from very strongly acid to medium acid, except where limed. The A horizon has hue of 10YR and 7.5YR, value of 3 or 4, and chroma of 2 to 4. Horizons with values of 3 or less are less than 6 inches thick. The B horizon has value of 4 or 5 and chroma of 4 to 6 in hue of 10YR and 7.5YR. It is silt loam or silty clay loam. In some pedons there are no silt coatings. The C horizon has colors and textures similar to the B horizon.

Menfro series

The Menfro series consists of deep, well drained, moderately permeable soils on loess-covered uplands. Slopes range from 2 to 30 percent.

Menfro soils are similar to Memphis soils and are commonly adjacent to Bucklick, Clarksville, Holstein, Peridge, and Poynor soils. Memphis soils have a thermic temperature regime. Bucklick soils have a fine-textured control section and formed in a thin mantle of loess underlain by residuum weathered from dolomite or limestone and thinly interbedded shale. Clarksville soils are loamy-skeletal and formed in residuum weathered from cherty dolomite or cherty limestone. Holstein soils are fine-loamy and formed in material weathered from sandstone, limestone, and shale. Peridge soils formed in thin loess underlain by cherty limestone residuum. Poynor soils are loamy-skeletal over clayey in the control section and weathered from cherty limestone, cherty dolomite, and shale.

Typical pedon of Menfro silt loam, 5 to 9 percent slopes, in a pasture about 600 feet north and 1,550 feet east of the southwest corner of section 2, T., 31 N., R. 14 E., in Cape Girardeau County.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; moderately fine granular structure; friable; many roots; slightly acid; abrupt smooth boundary.

B1—8 to 14 inches; brown (7.5YR 4/4) silt loam; moderate fine subangular blocky structure; friable; thin patchy clay films on ped faces; common roots; few pores; medium acid; clear smooth boundary.

B21t—14 to 34 inches; brown (7.5YR 4/4) silty clay loam; thin continuous dark brown (7.5YR 4/4) clay films on ped faces; strong fine subangular blocky structure; friable; few roots, pores, and worm casts; strongly acid; gradual smooth boundary.

B22t—34 to 59 inches; brown (7.5YR 4/4) silty clay loam; thin continuous dark brown (7.5YR 4/4) clay films on ped faces; moderate fine subangular blocky structure; friable; common thin silt coatings on ped faces; few roots and worm casts; common pores; strongly acid; gradual smooth boundary.

B3—59 to 76 inches; brown (7.5YR 4/4) silt loam; weak fine subangular blocky structure; friable; few thin silt coatings on ped faces; few pores; medium acid.

The thickness of the solum ranges from 40 to more than 80 inches. The A horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 4. If value and chroma are 3, the horizon is less than 4 inches thick. Reaction ranges from strongly acid to neutral. In some pedons the A2 horizon has a value of 4 or 5 and chroma of 3 or 4. The B horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6. It is silt loam or silty clay loam. Reaction ranges from strongly acid to slightly acid. In some pedons light gray, light brownish gray, or pale brown silt coatings are on ped faces. The C horizon is similar to the B horizon.

Mhoon series

The Mhoon series consists of deep, poorly drained, slowly permeable soils on bottom land. They formed in silty alluvium along the Mississippi River. Slopes are 0 to 2 percent.

Mhoon soils are commonly associated with Commerce, Falaya, and Sharkey soils. Commerce soils are dominated by colors in chroma of 2. Falaya soils are less than 18 percent clay and are at slightly higher elevations than Mhoon soils. Sharkey soils are clayey throughout the profile and are in broad depressional areas.

Typical pedon of Mhoon silt loam, 2,050 feet west and 1,200 feet south of the northeast corner of section 35, T. 29 N., R. 11 E., in Cape Girardeau County.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; neutral; abrupt smooth boundary.

B1g—4 to 18 inches; dark gray (10YR 4/1) silty clay loam; common fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky structure; friable; mildly alkaline; clear smooth boundary.

B2g—18 to 32 inches; gray (10YR 5/1) silty clay loam; common fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine subangular blocky structure; friable; mildly alkaline; clear smooth boundary.

Cg—32 to 60 inches; light gray (10YR 6/1) silt loam; common medium distinct yellowish brown (10YR 5/8) mottles; massive; friable; neutral.

The thickness of the solum ranges from about 20 to 50 inches. The reaction of the A horizon ranges from slightly acid to mildly alkaline, and the reaction of the B horizon ranges from slightly acid to moderately alkaline. The A horizon is dark gray (10YR 4/1) or dark grayish brown (10YR 4/2). In some pedons there is a dark brown (10YR 3/3) A horizon that is less than 6 inches thick. Thickness of the A horizon ranges from 4 to 12 inches. The B horizon has colors in value of 4, 5, or 6 and chroma of 1 in hue of 10YR and 2.5Y with brownish or reddish mottles. It is silt loam or silty clay loam. The C horizon has color, texture, and reaction similar to those of the B horizon.

Peridge series

The Peridge series consists of deep, well drained, moderately permeable soils on loess-covered uplands. They formed in thin loess underlain by cherty limestone residuum. Slopes range from 5 to 30 percent.

Peridge soils are commonly adjacent to Holstein, Menfro, and Poynor soils. Holstein soils have a fine-loamy control section and formed in material weathered from sandstone, siltstone, and shale. Menfro soils formed in deep loess and are similar to the Peridge soils in position on the landscape. Poynors soils have a loamy-skeletal over clayey control section and formed in residuum from cherty limestone, cherty dolomite, and shale.

Typical pedon of Peridge silt loam, 5 to 9 percent slopes, about 1,390 feet south and 330 feet east of the northwest corner of section 29, T. 32 N., R. 11 E., in Cape Girardeau County.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; medium acid; abrupt smooth boundary.

A12—2 to 7 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; strongly acid; gradual wavy boundary.

B21t—7 to 26 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; thick continuous clay films; strongly acid; gradual wavy boundary.

B22t—26 to 31 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; pale brown (10YR 6/3) silt coatings; strongly acid; clear wavy boundary.

B23t—31 to 43 inches; yellowish red (5Y 5/6) silty clay loam; weak fine subangular blocky structure; firm; thin patchy clay films; 5 percent chert fragments; strongly acid; gradual wavy boundary.

B24t—43 to 56 inches; red (2.5YR 4/6) cherty silty clay loam; weak fine subangular blocky structure; firm; thin patchy clay films; about 35 percent chert fragments; very strongly acid; clear wavy boundary.

B3—56 to 60 inches; dark red (2.5YR 3/6) silty clay; moderate fine subangular blocky structure; firm; very strongly acid.

The thickness of the solum is more than 60 inches. Reaction ranges from very strongly acid to medium acid throughout, except where the surface layer has been limed. The A horizon has hue of 10YR and 7.5YR, value of 3 to 5, and chroma of 2 to 4. Colors with value and chroma of 3 or less are less than 6 inches thick. In some pedons there is no A12 horizon. The B21t and B22t horizons have hue of 7.5YR and 5YR, value of 4 or 5, and chroma of 4 to 6. Texture is silt loam or silty clay loam. The B23t horizon and the lower horizons have hue of 5YR and 2.5YR, value of 4 or 5, and chroma of 4 to 6. Texture is silty clay loam or silty clay. Chert content ranges from 0 to 35 percent.

Poynor series

The Poynor series consists of deep, well drained, moderately permeable soils on uplands. They formed in residuum weathered from cherty limestone, cherty dolomite, and shale. Slopes range from 14 to 30 percent.

Poynor soils are adjacent to Holstein, Menfro, and Peridge soils. The Holstein soils are fine-loamy and weathered from sandstone, siltstone, and shale. Menfro soils are fine-silty and formed in loess. Peridge soils are fine-silty and formed in thin loess over cherty limestone residuum.

Typical pedon of Poynor cherty silt loam, 14 to 30 percent slopes, about 925 feet east and 1,500 feet south of the northwest corner of section 32, T. 32 N., R. 11 E., in Cape Girardeau County.

A1—0 to 4 inches; brown (10YR 4/3) cherty silt loam; weak fine granular structure; very friable; many fine roots; about 25 percent by volume chert fragments; medium acid; clear smooth boundary.

A2—4 to 10 inches; yellowish brown (10YR 5/4) cherty silt loam; weak fine subangular blocky structure; friable; many fine roots; about 25 percent by volume chert fragments; strongly acid; gradual smooth boundary.

B1—10 to 19 inches; strong brown (7.5YR 5/6) cherty silt loam; weak fine subangular blocky structure; friable; common fine roots; about 40 percent by volume chert fragments; very strongly acid; clear smooth boundary.

B21t—19 to 24 inches; yellowish red (5YR 5/6) cherty silty clay loam; weak fine subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; about 40 percent by volume chert fragments; very strongly acid; clear irregular boundary.

IIB22t—24 to 40 inches; red (2.5YR 4/6) silty clay; moderate fine subangular blocky structure; firm; thin continuous dark red (2.5YR 3/6) clay films on faces of peds; about 10 percent by volume chert fragments; very strongly acid; clear smooth boundary.

IIB23t—40 to 64 inches; red (2.5YR 4/6) silty clay; moderate fine subangular blocky structure; firm; thin continuous dark red (2.5YR 3/6) clay films on faces of peds; extremely acid; clear smooth boundary.

The thickness of the solum ranges from 60 to more than 72 inches. The A horizon ranges from very strongly acid to slightly acid, and below this, the reaction ranges from extremely acid to strongly acid. The A horizon has colors in hue of 10YR, value of 3 to 5, and chroma of 3 or 4. Chert content ranges from 25 to 50 percent. The B horizon has hue of 7.5YR and 5YR, value of 4 or 5, and chroma of 4 to 8. Texture is cherty silt loam, cherty silty clay loam, or their very cherty counterparts. Chert content ranges from 40 to 80 percent. The IIB horizon has hue of 2.5YR to 10YR, value of 4 or 5, and chroma of 4 to 8. Texture is silty clay or clay. Chert fragments range from 0 to 10 percent. The Cr horizon, if there is one, varies greatly in color and thickness. Colors are in hue of 10YR to 2.5YR, value of 4 to 6, and chroma of 4 to 8.

Reelfoot series

The Reelfoot series consists of deep, somewhat poorly drained, moderately permeable soils on broad flood plains. They formed in silty alluvium. Slopes range from 0 to 2 percent.

Reelfoot soils are adjacent to Commerce, Roellen, Sharkey, Tiptonville, and Tunica soils. Commerce soils do not have an argillic horizon. Roellen and Sharkey soils have clayey textures throughout and do not have argillic horizons. Tiptonville soils are moderately well drained and are on higher positions on the landscape than Reelfoot soils. Tunica soils are clayey over loamy and are poorly drained.

Typical pedon of Reelfoot silt loam, 2,375 feet east and 265 feet south of the northwest corner of section 10, T. 27 N., R. 15 E., in Scott County.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; friable; few fine roots; neutral; abrupt smooth boundary.

A12—6 to 16 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine subangular blocky structure; friable; few fine roots; neutral; clear smooth boundary.

B21t—16 to 24 inches; dark grayish brown (10YR 4/2) silty clay loam; common fine distinct brown (10YR 5/3) and yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; firm; thin patchy clay films on faces of peds; very dark gray (10YR 3/1) stains on vertical ped faces; strongly acid; clear smooth boundary.

B22t—24 to 32 inches; dark grayish brown (10YR 4/2) silt loam; common fine distinct brown (10YR 5/3) and dark yellowish brown (10YR 4/4) mottles; weak very fine and fine subangular blocky structure; friable; thin patchy clay films on some ped faces; strongly acid; clear smooth boundary.

C—32 to 60 inches; mixed matrix of dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) silt loam; few fine distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) mottles; weak fine granular structure; friable; strongly acid.

The thickness of the solum ranges from 30 to 60 inches. Thickness of the mollic epipedon ranges from 12 to 20 inches. Reaction of the A horizon is medium acid or slightly acid, except where limed. Reaction of the B horizon ranges from strongly acid to slightly acid, and in the C horizon the reaction ranges from strongly acid to neutral. The A horizon has colors in hue of 10YR, value of 3, and chroma of 1 or 2. It is commonly silt loam, but the range includes fine sandy loam, loam, and silty clay loam. The B horizon has hue of 10YR, value of 4 or 5, and chroma of 2, or is mottled with these colors and other colors in hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6. Texture is silt loam or silty clay loam. The C horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2 with brownish mottles. Texture is silt loam, loam, or silty clay loam.

Roellen series

The Roellen series consists of deep, poorly drained, slowly permeable soils on broad, level flood plains and low terraces. They formed in alluvium along the Mississippi River. Slopes range from 0 to 2 percent.

Roellen soils are adjacent to Commerce, Reelfoot, Sharkey, and Tunica soils. Commerce soils are fine-silty and do not have a mollic epipedon. Reelfoot soils are fine-silty and have an argillic horizon. Sharkey soils have a very fine control section and do not have a thick mollic epipedon. Tunica soils are clayey over loamy and do not have a thick mollic epipedon.

Typical pedon of Roellen silty clay, in a cultivated field about 1,725 feet south and 1,320 feet west of the northeast corner of section 12, T. 26 N., R. 17 E., in Mississippi County.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silty clay, gray (10YR 5/1) dry; few fine distinct brown (7.5YR 4/4) mottles; weak fine granular structure; firm; common fine roots; few fine pores; medium acid; clear smooth boundary.

A12—6 to 12 inches; very dark grayish brown (10YR 3/2) silty clay, gray (10YR 5/1) dry; few fine distinct brown (7.5YR 4/4) mottles; moderate fine subangular blocky structure; very firm; common fine roots; few fine pores; medium acid; abrupt smooth boundary.

B21g—12 to 22 inches; dark gray (10YR 4/1) silty clay; few fine faint dark brown (10YR 4/3) mottles; moderate fine subangular blocky structure; very firm; few very fine roots; common very fine pores; medium acid; clear smooth boundary.

B22g—22 to 38 inches; dark grayish brown (10YR 4/2) silty clay; few fine faint dark brown (10YR 4/3) mottles; moderate medium subangular blocky structure; very firm; few very fine roots and pores; slightly acid; clear smooth boundary.

B23g—38 to 54 inches; dark gray (10YR 4/1) silty clay; few fine faint dark brown (10YR 4/3) mottles; moderate medium subangular blocky structure; firm; few very fine pores; pressure faces evident; slightly acid; clear smooth boundary.

Cg—54 to 60 inches; dark grayish brown (2.5Y 4/2) silty clay loam; fine faint dark brown (10YR 4/3) mottles; weak fine subangular blocky structure; friable; slightly acid.

The thickness of the solum ranges from 36 to 60 inches. The thickness of the mollic epipedon ranges from 12 to 45 inches. Reaction ranges from medium acid to mildly alkaline. The A horizon has hue of 10YR, value of 3, and chroma of 1 or 2. It is dominantly silty clay, but the range includes silty clay loam and clay. The Bg horizon has color in hue of 10YR to 5Y, value of 4 or 5, and chroma of 1 or 2. In some pedons, the upper part of the B horizon contains mixed dark colors along with grayish colors. Texture is dominantly silty clay, but the range includes silty clay loam and clay. The Cg horizon, if there is one, has colors similar to those of the B horizon. Reddish or brownish mottles are common in the lower part of the A, Bg, and Cg horizons. Textures are typically silty clay, silty clay loam, or clay; however, in some pedons there is silt loam below a depth of 50 inches.

Saffell series

The Saffell series consists of deep, well drained, moderately permeable soils that formed in marine and fluvial deposits high in content of gravel. Slopes range from 20 to 45 percent.

Saffell soils are adjacent to Adler and Memphis soils. Adler soils are coarse-silty and are on flood plains. Memphis soils are fine-silty and are gravel free.

Typical pedon of Saffell gravelly loamy sand from a wooded area of Saffell soils, 20 to 45 percent slopes, 1,320 feet north of the center of section 26, T. 29 N., R.14 E., in Scott County.

A1—0 to 3 inches; brown (7.5YR 4/4) gravelly loamy sand; weak fine granular structure; very friable; many fine and medium roots; about 40 percent by volume gravel; very strongly acid; clear smooth boundary.

B21t—3 to 16 inches; red (2.5YR 4/6) very gravelly loam; moderate fine subangular blocky structure; friable; common fine roots; sand grains coated with clay; about 50 percent by volume gravel; very strongly acid; clear smooth boundary.

B22t—16 to 39 inches; red (2.5YR 4/8) very gravelly loam; moderate fine subangular blocky structure; friable; sand grains coated with clay; about 65 percent by volume gravel; very strongly acid; clear wavy boundary.

B23t—39 to 54 inches; red (2.5YR 4/6) gravelly loam; moderate fine and medium subangular blocky structure; friable; few thin patchy clay films; about 40 percent by volume gravel; very strongly acid; clear smooth boundary.

C—54 to 60 inches; red (2.5YR 4/8) gravelly sandy loam; massive; friable; about 20 percent by volume gravel; strongly acid.

The thickness of the solum ranges from 40 to 54 inches. Reaction is very strongly acid or strongly acid throughout the profile. The A horizon has colors in hue of 10YR and 7.5YR, value of 4, and chroma of 2 to 4. It is dominantly gravelly loamy sand, but the range includes gravelly sandy loam. Gravel content ranges from 25 to 50 percent. The B horizon has colors in hue of 7.5YR to 2.5YR, value of 4 or 5, and chroma of 6 to 8. Textures are gravelly sandy loam, gravelly loam, gravelly sandy clay loam, or their very gravelly counterparts. Gravel content ranges from 35 to 65 percent. The C horizon has colors similar to those of the B horizon. Texture is gravelly sandy loam or very gravelly loamy sand.

Scotco series

The Scotco series consists of deep, excessively drained, rapidly permeable soils. These soils formed in sandy alluvial sediments and are on broad old natural levees. Slopes range from 0 to 12 percent.

Scotco soils are commonly adjacent to Clana and Diehlstadt soils. Clana soils have mottles in chroma of 2 within 40 inches of the surface. The Diehlstadt soils have a thick mollic surface horizon.

Typical pedon of Scotco sand, 0 to 4 percent slopes, 1,500 feet east and 1,300 feet south of the northwest corner of section 35, T. 28 N., R. 14 E., in Scott County.

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) sand, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; many fine roots; medium acid; clear smooth boundary.

B21—9 to 20 inches; dark yellowish brown (10YR 4/4) coarse sand; weak medium subangular blocky structure; very friable; common fine roots; medium acid; clear smooth boundary.

B22—20 to 32 inches; yellowish brown (10YR 5/6) coarse sand; single grained; loose; medium acid; gradual wavy boundary.

C—32 to 60 inches; yellowish brown (10YR 5/8) sand; single grained; loose; slightly acid.

The thickness of the solum ranges from 20 to more than 60 inches but commonly is 32 to 54 inches. Reaction ranges from medium acid to neutral. The Ap horizon has hue of 10YR and 7.5YR, value of 3 or 4, and chroma of 2 or 3. It is dominantly sand, but the range includes loamy sand and coarse sand. The B horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8. It is loamy sand, sand, or coarse sand. In some pedons there are mottles in shades of brown in the lower part of the B horizon. The C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8. It is coarse sand, sand, or loamy sand. In some pedons there is up to about 25 percent fine gravel at a depth of 48 inches or more.

Sharkey series

The Sharkey series consists of deep, poorly drained, very slowly permeable soils on the lower part of natural levees and in depressed slack water areas on the Mississippi River flood plain. They formed in clayey alluvium and are known locally as "gumbo". Slopes range from 0 to 2 percent.

Sharkey soils are similar to Alligator soils and are commonly adjacent to Roellen and Tunica soils. Alligator soils are more acid in the control section than Sharkey soils. Roellen soils have a darker colored surface horizon and have less clay. Tunica soils are clayey over loamy.

A typical pedon of Sharkey silty clay, in a cultivated field about 2,200 feet west and 180 feet north of the southeast corner of section 32, T. 26 N., R. 17 E., in Mississippi County.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silty clay, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; firm, slightly plastic; common very fine roots and pores; neutral; clear smooth boundary.
B21g—7 to 24 inches; dark gray (10YR 4/1) clay; common fine distinct dark brown (7.5YR 4/4) mottles; moderate medium subangular blocky structure; very firm, very plastic; few very fine roots; common very fine pores; slightly acid; gradual smooth boundary.
B22g—24 to 36 inches; gray (10YR 5/1) clay; common fine distinct dark brown (7.5YR 4.4) mottles; moderate medium subangular blocky structure; very firm, very plastic; common very fine pores; shiny surfaces on faces of peds; neutral; clear smooth boundary.
B3g—36 to 54 inches; gray (10YR 5/1) clay; common fine distinct dark brown (7.5YR 4/4) mottles; moderate medium subangular blocky structure; very firm, very plastic; common very fine pores; shiny surfaces on faces of peds; neutral; clear smooth boundary.
Cg—54 to 72 inches; gray (10YR 5/1) silty clay; common fine distinct dark brown (7.5YR 4/4) mottles; moderate fine subangular blocky structure; firm, slightly plastic; 1 percent calcium carbonate concretions; neutral.

The thickness of the solum ranges from 36 to 60 inches. Reaction ranges from medium acid to moderately alkaline in the A and B horizons, but it ranges from neutral to moderately alkaline in the C horizon. The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. If the value and chroma are 2 or 3, it is less than 10 inches thick. The A horizon is silty clay, but the range includes clay. The B horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 1 with brownish, yellowish, or reddish mottles. Texture is silty clay or clay, but the 10- to 40-inch control section averages more than 60 percent clay. The C horizon has colors similar to those of the B horizon. It is silty clay loam, silty clay, or clay.

Sikeston series

The Sikeston series consists of deep, poorly drained soils that have moderately slow permeability. They formed in alluvium on the Mississippi River flood plains. These soils are in depressional areas and along old stream channels adjacent to high, old natural terraces. Slopes range from 0 to 2 percent.

The Sikeston soils are adjacent to Diehlstadt, Lilbourn, and Roellen soils. The Diehlstadt soils have a sandy control section and are somewhat poorly drained. Lilbourn soils are coarse-loamy and do not have a mollic epipedon. Roellen soils have a fine-textured control section.

Typical pedon of Sikeston loam, in a cultivated field about 2,000 feet west and 150 feet south of the northeast corner of section 18, T. 26 N., R. 15 E., in Mississippi County.

Ap—0 to 6 inches; very dark gray (10YR 3/1) loam, dark gray (10YR 4/1) dry; weak fine granular structure; friable; few fine roots; slightly acid; abrupt smooth boundary.
A12—6 to 13 inches; very dark gray (10YR 3/1) clay loam; moderate medium subangular blocky structure; firm; common fine roots; few very fine pores; slightly acid; clear smooth boundary.
A13—13 to 29 inches; very dark gray (10YR 3/1) clay loam; few fine distinct dark brown (7.5YR 4/4) mottles; moderate fine and medium subangular blocky structure; firm; few fine roots; common very fine pores; slighty acid; clear smooth boundary.
A14—29 to 37 inches; mixed very dark gray and dark gray (10YR 3/1 & 4/1) loam; few fine distinct dark brown (7.5YR 4/4) mottles; weak fine and medium subangular blocky structure; friable; common very fine pores; slightly acid; abrupt wavy boundary.
IIC1g—37 to 45 inches; grayish brown (2.5Y 5/2) loam; few fine distinct dark brown (7.5YR 4/4) mottles; weak fine subangular blocky structure; friable; slightly acid; abrupt smooth boundary.
IIC2g—45 to 60 inches; mixed dark grayish brown (2.5Y 4/2) and grayish brown (2.5Y 5/2) loamy sand; massive; loose; slightly acid.

Thickness of the mollic epipedon ranges from 24 to 48 inches. Reaction ranges from slightly acid to mildly alkaline. The Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is dominantly loam, but the range includes sandy clay loam, clay loam, and sandy loam. The subsurface horizons have hue of 10YR, value of 2 or 3, and chroma of 1 or 2. They are clay loam, sandy clay loam, or loam. The AC horizon and the upper part of the IIC horizon have hues of 2.5Y or 5Y, values of 4 or 5, and chroma of 1 or 2. Textures are sandy clay loam, loam, or sandy loam. The lower part of the IIC horizon has colors similar to those of the AC horizon and upper part of the IIC horizon. It has textures of sandy loam, very fine sandy loam, loamy sand, sand, or sandy clay loam and is stratified. Mottles have hue of 10YR, 7.5YR, and 2.5Y; value of 3 to 5; and chroma of 4 to 8; and they are few to common in the horizons below the surface layer.

Steele series

The Steele series consists of deep, nearly level, moderately well drained soils along the Mississippi River and along old levee breaks. Permeability is rapid in the upper part of the profile and slow in the lower part. These soils formed in sandy and loamy alluvium over clayey alluvium at a depth of 20 to 36 inches. Slopes range from 0 to 2 percent.

Steele soils are adjacent to Caruthersville, Commerce, and Crevasse soils. Caruthersville soils are coarse-silty. Commerce soils are fine-silty and are somewhat poorly drained. Crevasse soils are sandy throughout and are excessively drained.

Typical pedon of Steele fine sand from an area of Sharkey-Steele complex, in a cultivated field about 2 miles southeast of Wyatt and approximately 1,800 feet north and 150 feet west of the southeast corner of section 21, T. 26 N., R. 17 E., in Mississippi County.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) fine sand; weak fine granular structure; very friable; common fine and very fine roots; medium acid; abrupt smooth boundary.

C1—8 to 22 inches; dark brown (10YR 4/3) loamy sand; massive; loose; medium acid; abrupt smooth boundary.

C2g—22 to 26 inches; grayish brown (10YR 5/2) sandy loam; weak fine granular structure; firm; medium acid; abrupt smooth boundary.

IIA1bg—26 to 34 inches; very dark gray (10YR 3/1) clay; moderate medium subangular blocky structure; very firm; few very fine pores; slightly acid; clear smooth boundary.

IIC3g—34 to 60 inches; dark gray (10YR 4/1) clay; moderate medium subangular blocky structure; very firm; few fine pores; medium acid.

The thickness of the soil over the clayey substratum ranges from 20 to 36 inches. Reaction ranges from medium acid to neutral in all horizons. The A horizon has colors in hue of 10YR, value of 3 or 4, and chroma of 2. Dry colors have values higher than 5.5. The A horizon is dominantly fine sand, but the range includes loamy sand, sandy loam, and loam. The C horizon has colors with value of 4 or 5 and chroma of 2 or 3. Texture is sand, loamy sand, sandy loam, or loam. The IIAb horizon has value of 2 or 3 and chroma of 1 or 2. Texture is silty clay loam, silty clay, or clay. The IIC horizon is dark gray clay, silty clay, or silty clay loam with brownish mottles.

Tiptonville series

The Tiptonville series consists of deep, moderately well drained, moderately permeable soils on old natural levees of the Mississippi River. They formed in silty alluvium. Slopes range from 0 to 2 percent.

Tiptonville soils are adjacent to Bosket, Dubbs, Reelfoot, and Roellen soils. The Bosket and Dubbs soils do not have a thick mollic epipedon and are well drained. Reelfoot soils have chroma of 2 in the control section and are somewhat poorly drained. Roellen soils have a fine-textured control section and are poorly drained.

Typical pedon of Tiptonville silt loam, in a cultivated field about 1,200 feet west and 200 feet south of the northeast corner of section 11, T. 26 N., R. 17 E., in Mississippi County.

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common very fine roots; medium acid; abrupt smooth boundary.

A12—6 to 15 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate fine subangular blocky structure; firm; few thin clay films on faces of peds and in tubular pores; common very fine roots and pores; medium acid; clear smooth boundary.

B21t—15 to 21 inches; dark brown (10YR 4/3) silty clay loam; weak fine subangular blocky structure; firm; few very dark grayish brown organic coatings in pores and root channels; few thin clay films on faces of peds and in root channels; common very fine roots and pores; medium acid; clear smooth boundary.

B22t—21 to 38 inches; dark brown (10YR 4/3) silt loam; few fine faint grayish brown (10YR 5/2) mottles; weak fine and medium subangular blocky structure; friable; few thin clay films on faces of peds and in root channels; few very fine roots; common very fine pores; medium acid; abrupt smooth boundary.

B23t—38 to 50 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable; few thin clay films on faces of peds and in root channels; few very fine roots; common very fine pores; medium acid; smooth boundary.

B3—50 to 60 inches; brown (10YR 5/3) silt loam; common fine faint grayish brown (10YR 5/2) mottles; weak fine granular structure; friable; common very fine pores; medium acid; abrupt smooth boundary.

The thickness of the solum ranges from 35 to 65 inches but typically is 40 to 50 inches. The mollic epipedon ranges from 10 to 20 inches in thickness. Reaction of the A horizon ranges from medium acid to neutral. In the B horizon reaction ranges from slightly acid to strongly acid, and in the C horizon it ranges from medium acid to neutral.

The A horizon has hue of 10YR and 7.5YR, value of 2 or 3, and chroma of 2 or 3. It is commonly silt loam, but the range includes silty clay loam, loam, and very fine sandy loam. The B horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. Dark brown (10YR 3/3) or very dark grayish brown (10YR 3/2) colors are in the upper 2 to 10 inches in some pedons. Grayish mottles are present at a depth of 17 to 35 inches. Texture is silty clay loam or silt loam and, less commonly, loam or very fine sandy loam. The C horizon is similar in color to the B horizon but has more grayish brown colors. Texture of the C horizon is typically silt loam or very fine sandy loam, but in some pedons there are strata of silty clay loam, clay loam, or fine sandy loam below a depth of 40 inches.

Towosahgy series

The Towosahgy series consists of deep, well drained soils on ridgetops of old natural levees. These soils formed in loamy alluvium over sandy sediments on the old Mississippi River flood plains. Permeability is moderate in the loamy part, and it is rapid in the underlying sandy part. Slopes range from 0 to 3 percent.

Towosahgy soils are adjacent to Bowdre, Malden, Reelfoot, Tiptonville, and Tunica soils. Bowdre and Tunica soils are clayey over loamy. Malden soils are sandy throughout. Reelfoot and Tiptonville soils are fine-silty and have argillic horizons.

Typical pedon of Towosahgy fine sandy loam, in a cultivated field about 2,475 feet north and 2,540 feet east of the southwest corner of section 12, T. 24 N., R. 16 E., in Mississippi County.

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common fine roots; few very fine pores; slightly acid; abrupt smooth boundary.

A12—5 to 18 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate fine and medium subangular blocky structure; firm; common fine roots; few fine pores; slightly acid; abrupt smooth boundary.

IIC12—18 to 22 inches; dark brown (10YR 3/3) loamy fine sand; weak fine subangular blocky structure; friable; common fine roots; few very fine pores; slightly acid; clear smooth boundary.

IIC2—22 to 50 inches; brown (10YR 4/3) fine sand; massive; loose; slightly acid; clear smooth boundary.

IIC3—50 to 60 inches; brown (10YR 5/3) loamy fine sand; massive; very friable; medium acid.

Depth to the contrasting sandy IIC horizon is 15 to 28 inches. Reaction ranges from medium acid to neutral throughout. The Ap horizon has colors in hue of 10YR, value of 3, and chroma of 1 to 3. It is dominantly fine sandy loam, but the range includes loam and silt loam. The IIC horizon has hue of 10YR, value of 3 to 5, and chroma of 3 or 4. In some pedons there are dark grayish brown or grayish brown mottles below a depth of 40 inches. The IIC horizon is commonly stratified below a depth of 40 inches and texture is fine sandy loam, loamy fine sand, loamy sand, fine sand, or sand.

Tunica series

The Tunica series consists of deep, poorly drained soils on flood plains of the Mississippi River. These soils are very slowly permeable in the upper horizons and moderately permeable in the lower horizons. They formed in alluvium. Slopes range from 0 to 2 percent.

Tunica soils are adjacent to Bowdre, Commerce, and Sharkey soils. Bowdre soils have a mollic epipedon and are on ridgetops. Commerce soils are fine-silty and are somewhat poorly drained. Sharkey soils are clayey throughout the profile.

Typical pedon of Tunica silty clay loam, in a cultivated field about 1,100 feet south and 1,600 feet west of the northeast corner of section 6, T. 26 N., R. 18 E., in Mississippi County.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) silty clay loam; moderate fine granular structure; friable; common very fine roots; medium acid; abrupt smooth boundary.

B21g—5 to 30 inches; dark gray (10YR 4/1) silty clay; moderate fine subangular blocky structure; firm; few very fine roots; common very fine pores; slightly acid; abrupt smooth boundary.

IIC—30 to 48 inches; grayish brown (10YR 5/2) silt loam; weak very fine subangular blocky structure; very friable; few very fine roots and pores; medium acid; clear smooth boundary.

IIC2—48 to 60 inches; grayish brown (10YR 5/2) fine sandy loam; few fine faint yellowish brown (10YR 5/6) mottles; weak fine granular structure; very friable; few very fine roots and pores; slightly acid.

Thickness of the solum and depth to the loamy material are 20 to 36 inches. Reaction ranges from medium acid to mildly alkaline in all horizons. The A horizon has colors in hue of 10YR, value of 3 or 4, and chroma of 1 or 2. Horizons that have value of 3 and chroma of 1 or 2 are less than 6 inches thick. The A horizon is dominantly silty clay loam, but the range includes silty clay and clay. The B21g horizon has colors in hue of 10YR, value of 4 or 5, and chroma of 1. Few to many dark brown (7.5YR 4/2, 4/4 or 10YR 4/3) or dark yellowish brown (10YR 4/4) mottles are present. Texture is clay or silty clay. The B22g horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. Texture is silty clay or clay. The IIC horizon has hues of 10YR and 2.5Y, value of 4 or 5, and chroma of 1 or 2. Texture is silt loam, silty clay loam, loam, or fine sandy loam.

Wakeland series

The Wakeland series consists of deep, somewhat poorly drained, moderately permeable soils on bottom land. They formed in silty alluvium washed from the dominantly loess-capped uplands. Slopes range from 0 to 2 percent.

Wakeland soils are commonly adjacent to Haymond and Wilbur soils. Haymond soils do not have gray colors in the upper 20 inches of the profile. Wilbur soils have brown matrix colors with mottles in chroma of 2 within 20 inches of the soil surface and are in slightly depressional areas.

Typical pedon of Wakeland silt loam, frequently flooded, about 1,525 feet north and 3,300 feet east of the southwest corner of section 14, T. 31 N., R. 11 E., in Cape Girardeau County.

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; neutral; abrupt smooth boundary.
A12—5 to 12 inches; brown (10YR 5/3) silt loam; weak very fine subangular blocky structure; friable; common pores; slightly acid; clear smooth boundary.
C1g—12 to 32 inches; grayish brown (10YR 5/2) silt loam; common fine distinct strong brown (7.5YR 5/6) and few fine faint light gray (10YR 6/1) mottles; weak very fine subangular blocky structure; friable; few pores; few fine black concretions; slightly acid; clear smooth boundary.
C2g—32 to 42 inches; light brownish gray (10YR 6/2) silt loam; common fine distinct yellowish brown (10YR 5/6) mottles; massive; friable; few pores; common fine black concretions; slightly acid; clear smooth boundary.
C3g—42 to 60 inches; light brownish gray (10YR 6/2) silt loam; common fine distinct strong brown (7.5YR 5/6) mottles; massive; friable; common fine black concretions; slightly acid.

Reaction ranges from medium acid to neutral throughout the soil. The A horizon has hue of 10YR, value of 4 or 5, and chroma of 3. The C horizon has value of 5 or 6 and chroma of 1 to 4, but the 10- to 30-inch control section has dominant chroma of 2.

Wardell series

The Wardell series consists of deep, poorly drained soils that have slow permeability. They formed in alluvium on old flood plains, in depressions, and on low natural levees. Slopes range from 0 to 2 percent.

Wardell soils are adjacent to Clana, Scotco, and Sharkey soils. Clana and Scotco soils are more sandy than Wardell soils and do not have argillic horizons. Sharkey soils are clayey and do not have an argillic horizon.

Typical pedon of Wardell loam, 2,175 feet north and 540 feet east of the southwest corner of section 6, T. 26 N., R. 15 E., in Scott County.

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; slightly acid; abrupt smooth boundary.
B21tg—7 to 15 inches; gray (10YR 5/1) loam; common fine distinct yellowish red (5Y 5/6) mottles; weak medium subangular blocky structure; friable; very strongly acid; clear smooth boundary.
B22tg—15 to 26 inches; gray (10YR 5/1) loam; common fine distinct grayish brown (10YR 5/2) and many fine and medium distinct yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; firm; few patchy clay films; very strongly acid; clear smooth boundary.
C1g—26 to 36 inches; gray (10YR 6/1) sandy loam; many medium distinct yellowish red (5YR 4/6) mottles; massive; firm; strongly acid; clear smooth boundary.
C2g—36 to 52 inches; gray (10YR 6/1) sandy loam; common medium distinct yellowish brown (10YR 5/4) and common medium distinct reddish brown (5YR 4/4) mottles; massive; friable; strongly acid; clear smooth boundary.
C3g—52 to 60 inches; mottled gray (10YR 6/1), yellowish brown (10YR 5/4), and strong brown (7.5YR 5/6) loamy sand; single grained; strongly acid.

The thickness of the solum ranges from about 22 to 48 inches. Reaction of the A horizon ranges from medium acid to neutral. Reaction is very strongly acid to slightly acid in the B horizon. The A horizon is very dark grayish brown (10YR 3/2) or dark brown (10YR 3/3). It is dominantly loam, but the range includes sandy loam and sandy clay loam. The B horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. It is loam or sandy clay loam. Mottles in shades of brown and red are common. The C horizon has colors similar to those of the B horizon. Texture varies greatly but is typically loamy sand or sandy loam.

Wilbur series

The Wilbur series consists of deep, moderately well drained, moderately permeable soils on bottom land. They formed in silty alluvium washed from the dominantly loess-capped uplands. Slopes range from 0 to 2 percent.

Wilbur soils are similar to Adler soils and are commonly associated on the landscape with Haymond and Wakeland soils. Adler soils have a thermic temperature regime. Haymond soils do not have mottles of low chroma within 20 inches of the surface and are slightly higher in elevation than Wilbur soils. Wakeland soils have chroma of 2 immediately below the surface layer.

Typical pedon of Wilbur silt loam, frequently flooded, in a cultivated field about 900 feet south and 1,300 feet west of the northeast corner of survey 220, T. 30 N., R. 13 E., in Cape Girardeau County.

Ap—0 to 9 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine roots; neutral; abrupt smooth boundary.
C1—9 to 29 inches; brown (10YR 5/3) silt loam; few fine faint dark brown (7.5YR 4/4) and common medium distinct light brownish gray (10YR 6/2) mottles; weak fine granular structure; friable; few fine roots and pores; slightly acid; clear smooth boundary.
C2—29 to 48 inches; brown (10YR 5/3) silt loam; few fine faint dark brown (7.5YR 4/4) and common medium distinct light gray (10YR 7/2) mottles; massive; friable; many fine pores; medium acid; clear smooth boundary.

C3—48 to 60 inches; brown (10YR 5/3) silt loam; many medium distinct strong brown (7.5YR 5/6) and light brownish gray (10YR 6/2) mottles; weak fine subangular blocky structure grading to massive; friable; few fine black stains; medium acid.

Reaction of the A horizon ranges from slightly acid to neutral, and reaction of the C horizon ranges from medium acid to neutral. The A horizon has color in value of 4 or 5 and chroma of 2 or 3. It ranges from 6 to 12 inches in thickness. The C horizon typically has color in value of 5 or 6 and chroma of 3, but it ranges to values of 4 and 5 and chroma of 4. Mottles in chroma of 2 are within 20 inches of the surface. In some places the C horizon below a depth of 40 inches has matrix colors in chroma of 2.

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glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Blowout. A shallow depression from which all or most of the soil material has been removed by wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Colluvium. Soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. A tillage system that does not invert the soil and that leaves all or part of the crop residue on the surface throughout the year.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or arresting grazing for a prescribed period.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grains are grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual.* The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Large stones (in tables). Rock fragments 3 inches (7.5 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake (in tables). The slow movement of water into the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A1, A2, or A3) below the surface layer.

Surface soil. The A horizon. Includes all subdivisions of this horizon (A1, A2, and A3).

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days[1]	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
Cape Girardeau[2]											
January---	42.0	23.4	32.7	68	-6	0	2.93	1.24	4.30	5	2.1
February--	46.7	27.3	37.0	73	3	8	2.95	1.64	4.01	5	2.7
March-----	57.1	36.4	46.8	81	14	112	5.19	2.25	7.58	8	2.8
April-----	69.2	46.7	58.0	87	27	248	4.82	2.48	6.72	7	.1
May-------	78.5	55.5	67.0	93	33	527	5.29	2.47	7.59	8	.0
June------	87.2	64.2	75.7	99	48	771	3.24	1.78	4.42	6	.0
July------	89.9	67.7	78.8	101	52	893	3.77	1.90	5.28	5	.0
August----	87.6	65.1	76.4	100	50	818	3.44	1.92	4.67	6	.0
September-	81.1	58.5	69.8	95	39	594	4.03	2.21	5.51	5	.0
October---	71.7	46.1	58.9	90	27	300	2.43	.41	3.99	5	.0
November--	56.6	36.1	46.4	78	16	48	3.42	1.46	5.00	5	.2
December--	44.8	27.5	36.2	70	0	16	3.96	2.33	5.40	7	2.7
Yearly:											
Average--	67.7	46.2	57.0	---	---	---	---	---	---	---	---
Extreme--	---	---	---	103	-7	---	---	---	---	---	---
Total----	---	---	---	---	---	4,335	45.47	38.60	52.31	72	10.6

See footnotes at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION-Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days[1]	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
Sikeston[3]											
January---	43.8	25.7	34.8	69	0	0	3.74	1.41	5.60	6	2.5
February--	48.5	28.9	38.8	71	3	20	3.50	1.81	4.87	7	1.5
March-----	56.9	36.0	46.5	80	14	108	4.77	2.32	6.76	8	1.8
April-----	69.7	47.0	58.4	86	28	263	4.60	2.52	6.29	8	.0
May-------	79.1	56.3	67.7	95	36	549	5.12	2.77	7.04	8	.0
June------	87.6	64.5	76.1	101	49	783	4.08	2.02	5.74	6	.0
July------	90.2	68.0	79.1	101	53	902	3.31	1.73	4.59	6	.0
August----	88.6	65.7	77.2	100	51	843	3.00	1.83	4.04	5	.0
September-	82.5	58.8	70.7	96	40	621	4.07	1.80	5.90	6	.0
October---	72.6	46.9	59.8	89	28	316	2.67	.86	4.12	5	.0
November--	58.0	36.5	47.2	79	15	48	4.26	1.77	6.28	6	.3
December--	46.9	29.4	38.2	70	6	16	4.13	1.82	6.00	7	.3
Yearly:											
Average--	68.7	47.0	57.9	---	---	---	---	---	---	---	---
Extreme--	---	---	---	103	-2	---	---	---	---	---	---
Total----	---	---	---	---	---	4,469	47.25	38.14	55.86	78	6.4

---

[1] A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and substracting the temperature below which growth is minimal for the principal crops in the area (50° F).

[2] Data recorded at Cape Girardeau, Missouri, in the period 1960-76.

[3] Data recorded at Sikeston, Missouri, in the period 1951-76.

TABLE 2.--FREEZE DATES IN SPRING AND FALL

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Cape Girardeau[1]			
Last freezing temperature in spring:			
1 year in 10 later than--	April 2	April 13	April 28
2 years in 10 later than--	March 26	April 9	April 22
5 years in 10 later than--	March 13	March 31	April 11
First freezing temperature in fall:			
1 year in 10 earlier than--	October 31	October 19	October 8
2 years in 10 earlier than--	November 4	October 24	October 13
5 years in 10 earlier than--	November 14	November 2	October 22
Sikeston[2]			
Last freezing temperature in spring:			
1 year in 10 later than--	April 1	April 9	April 22
2 years in 10 later than--	March 25	April 4	April 18
5 years in 10 later than--	March 11	March 26	April 8
First freezing temperature in fall:			
1 year in 10 earlier than--	October 31	October 25	October 18
2 years in 10 earlier than--	November 4	October 29	October 22
5 years in 10 earlier than--	November 13	November 6	October 29

[1] Data recorded at Cape Girardeau, Missouri, in the period 1960-76.

[2] Data recorded at Sikeston, Missouri, in the period 1951-76.

TABLE 3.--GROWING SEASON

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
Cape Girardeau[1]			
9 years in 10	226	196	174
8 years in 10	232	202	181
5 years in 10	245	215	193
2 years in 10	257	228	206
1 year in 10	264	234	212
Sikeston[2]			
9 years in 10	225	207	184
8 years in 10	232	213	190
5 years in 10	246	224	203
2 years in 10	260	236	216
1 year in 10	267	242	223

[1] Data recorded at Cape Girardeau, Missouri, in the period 1960-76.

[2] Data recorded at Sikeston, Missouri, in the period 1951-76.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Cape Girardeau County	Mississippi County	Scott County	Total--	
		Acres	Acres	Acres	Area Acres	Extent Pct
11C	Peridge silt loam, 5 to 9 percent slopes	2,150	0	0	2,150	0.2
11D	Peridge silt loam, 9 to 14 percent slopes	7,500	0	0	7,500	0.8
11E	Peridge silt loam, 14 to 20 percent slopes	4,250	0	0	4,250	0.5
12A	Elsah silt loam, 0 to 3 percent slopes	3,300	0	0	3,300	0.4
13	Haymond silt loam, frequently flooded	33,250	0	0	33,250	3.6
14E	Holstein loam, 14 to 20 percent slopes	4,000	0	0	4,000	0.4
15B	Iva silt loam, 2 to 6 percent slopes	910	0	0	910	0.1
16B	Menfro silt loam, 2 to 5 percent slopes	13,300	0	0	13,300	1.5
16C	Menfro silt loam, 5 to 9 percent slopes	45,600	0	0	45,600	5.0
16D	Menfro silt loam, 9 to 14 percent slopes	53,174	0	0	53,174	5.8
16E	Menfro silt loam, 14 to 30 percent slopes	33,600	0	0	33,600	3.6
17F	Menfro-Clarksville complex, 20 to 60 percent slopes	31,250	0	0	31,250	3.4
18D	Menfro-Bucklick silt loams, 9 to 14 percent slopes	12,100	0	0	12,100	1.3
18E	Menfro-Bucklick silt loams, 14 to 20 percent slopes	3,950	0	0	3,950	0.4
19D	Menfro-Holstein silt loams, 9 to 14 percent slopes	16,400	0	0	16,400	1.8
19E	Menfro-Holstein silt loams, 14 to 20 percent slopes	2,150	0	0	2,150	0.2
20E	Poynor cherty silt loam, 14 to 30 percent slopes	13,900	0	0	13,900	1.5
21D	Menfro-Bucklick silt loams, karst, 5 to 20 percent slopes	3,100	0	0	3,100	0.3
22	Wilbur silt loam, frequently flooded	6,200	0	0	6,200	0.7
23	Wakeland silt loam, frequently flooded	8,400	0	0	8,400	0.9
31	Adler silt loam	13,300	0	20,600	33,900	3.7
32	Allemands muck	400	0	0	400	*
33	Alligator silty clay	0	1,950	1,850	3,800	0.4
34	Beulah fine sandy loam	0	0	1,550	1,550	0.2
35	Diehlstadt loamy coarse sand	0	2,650	7,200	9,850	1.1
36	Bosket fine sandy loam	465	5,600	6,000	12,065	1.3
37A	Bowdre silty clay loam, 0 to 3 percent slopes	27	4,100	2,050	6,177	0.7
38A	Broseley loamy fine sand, 0 to 3 percent slopes	0	1,100	4,300	5,400	0.6
39	Cairo silty clay	0	95	1,650	1,745	0.2
40	Clana loamy fine sand	0	26,850	11,100	37,950	4.1
41A	Caruthersville very fine sandy loam, 0 to 3 percent slopes	850	23,350	4,000	28,200	3.1
42	Commerce silty clay loam	4,150	32,600	7,700	44,450	4.8
43	Cooter silty clay loam	0	345	680	1,025	0.1
44	Crevasse soils	125	1,350	550	2,025	0.2
45	Diehlstadt sandy clay loam	0	226	9,700	9,926	1.1
46	Dubbs silt loam	1,860	1,500	3,150	6,510	0.7
47	Dundee silt loam	4,020	10,700	3,500	18,220	2.0
48	Farrenburg fine sandy loam	30	0	6,800	6,830	0.7
49	Jackport silty clay loam	1,350	2,500	30	3,880	0.4
50	Lilbourn fine sandy loam	140	15,700	6,600	22,440	2.4
51A	Malden loamy fine sand, 0 to 3 percent slopes	0	17,000	9,100	26,100	2.8
52B	Memphis silt loam, 2 to 5 percent slopes	0	0	640	640	0.1
52C	Memphis silt loam, 5 to 9 percent slopes	810	0	15,740	16,550	1.8
52D3	Memphis silt loam, 9 to 14 percent slopes, severely eroded	900	0	8,300	9,200	1.0
52E3	Memphis silt loam, 14 to 40 percent slopes, severely eroded	4,300	0	20,520	24,820	2.7
53	Mhoon silt loam	5,100	2,300	1,050	8,450	0.9
54	Reelfoot silt loam	0	9,000	5,100	14,100	1.6
55	Roellen silty clay	1,350	6,300	7,900	15,550	1.7
56E	Saffell soils, 20 to 45 percent slopes	0	0	950	950	0.1
57B	Scotco sand, 0 to 4 percent slopes	0	112	39,394	39,506	4.3
57C	Scotco sand, 4 to 12 percent slopes	0	0	2,465	2,465	0.3
58	Sharkey silty clay	7,800	42,687	23,750	74,237	8.1
59	Sharkey silty clay loam	0	17,300	3,100	20,400	2.3
60	Sharkey-Steele complex	0	2,100	80	2,180	0.2
61	Sikeston loam	590	7,000	18,300	25,890	2.8
62	Steele fine sand	0	487	430	917	0.1
63	Tiptonville silt loam	0	10,100	2,050	12,150	1.3
64	Towosahgy fine sandy loam	0	2,750	0	2,750	0.3
65	Tunica silty clay loam	0	13,200	2,450	15,650	1.7
66	Wardell loam	55	25	1,250	1,330	0.1
67	Orthents-Water complex	1,375	4,750	1,490	7,615	0.8
68	Pits, quarry	215	0	135	350	*
70	Falaya silt loam	19,600	0	6,300	25,900	2.8
	Water	4,544	12,033	1,856	18,433	2.0
	Total	371,840	277,760	271,360	920,960	100.0

* Less than 0.1 percent.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Soil name and map symbol	Corn	Soybeans	Winter wheat	Grain sorghum	Grass-legume hay	Tall fescue
	Bu	Bu	Bu	Bu	Ton	AUM*
11C Peridge	75	25	35	---	3.7	7.5
11D, 11E Peridge	---	---	30	---	3.4	7.0
12A Elsah	90	28	38	80	3.5	7.0
13 Haymond	115	39	42	95	3.7	9.0
14E Holstein	---	---	---	---	2.7	6.5
15B Iva	110	40	45	---	4.4	8.8
16B Menfro	92	35	38	90	4.0	8.5
16C Menfro	84	31	35	80	3.7	7.5
16D Menfro	74	28	32	65	3.4	7.0
16E Menfro	---	---	---	---	3.0	7.0
17F Menfro-Clarksville	---	---	---	---	2.2	3.5
18D Menfro-Bucklick	65	24	27	---	3.0	---
18E Menfro-Bucklick	---	---	---	---	2.7	---
19D Menfro-Holstein	72	27	31	---	3.3	7.0
19E Menfro-Holstein	---	---	---	---	2.9	6.5
20E Poynor	---	---	---	---	1.6	3.2
21D Menfro-Bucklick	66	25	28	---	3.1	---
22 Wilbur	110	37	40	95	4.4	8.2
23 Wakeland	105	36	40	90	4.4	8.8
31 Adler	110	35	40	105	4.8	9.5
32 Allemands	100	30	30	---	---	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Soybeans	Winter wheat	Grain sorghum	Grass-legume hay	Tall fescue
	Bu	Bu	Bu	Bu	Ton	AUM*
33** Alligator	---	35	28	75	3.5	9.0
34 Beulah	65	35	40	---	3.5	7.0
35 Diehlstadt	60	20	30	70	2.3	7.0
36 Bosket	85	40	40	90	4.8	9.0
37A Bowdre	70	35	35	90	4.0	9.0
38A Broseley	70	30	35	---	3.5	8.0
39 Cairo	---	30	30	---	3.8	7.5
40 Clana	78	26	40	85	3.5	6.0
41A Caruthersville	105	41	45	---	4.3	9.0
42 Commerce	85	40	40	---	---	10.0
43 Cooter	74	28	---	---	3.4	7.5
44 Crevasse	---	---	---	---	2.0	4.5
45 Diehlstadt	80	27	35	80	3.4	8.0
46 Dubbs	90	40	45	95	4.8	10.0
47 Dundee	85	40	35	90	3.7	9.0
48 Farrenburg	90	36	40	85	4.3	7.5
49 Jackport	---	35	30	---	3.5	8.0
50 Lilbourn	80	30	32	85	3.9	7.5
51A Malden	65	25	40	80	3.0	6.0
52B Memphis	90	35	40	85	4.0	8.5
52C Memphis	80	30	35	75	3.5	7.5
52D3 Memphis	65	25	30	---	3.0	7.0
52E3 Memphis	---	---	---	---	2.8	7.0

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Corn	Soybeans	Winter wheat	Grain sorghum	Grass-legume hay	Tall fescue
	Bu	Bu	Bu	Bu	Ton	AUM*
53------------------------ Mhoon	90	40	35	---	4.0	9.0
54------------------------ Reelfoot	95	40	40	95	4.4	9.0
55------------------------ Roellen	65	33	26	---	3.5	9.0
56E----------------------- Saffell	---	---	---	---	1.5	3.0
57B----------------------- Scotco	40	12	20	---	2.0	4.5
57C----------------------- Scotco	---	---	---	---	2.0	4.0
58, 59-------------------- Sharkey	---	40	32	80	3.7	9.0
60------------------------ Sharkey-Steele	---	33	30	70	3.5	8.5
61------------------------ Sikeston	96	40	40	---	4.3	8.5
62------------------------ Steele	55	25	---	---	2.5	6.5
63------------------------ Tiptonville	115	45	50	105	---	---
64------------------------ Towosahgy	88	32	36	73	3.8	7.5
65------------------------ Tunica	---	35	---	85	3.8	9.5
66------------------------ Wardell	110	36	38	---	4.4	9.0
67. Orthents						
68***. Pits						
70------------------------ Falaya	100	40	40	95	3.5	9.0

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** Yields are for areas protected from flooding.

*** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
11C, 11D----------- Peridge	3o	Slight	Slight	Slight	Slight	Shortleaf pine------	70	Shortleaf pine, loblolly pine, black walnut, black locust, southern red oak, white ash, eastern redcedar.
						Southern red oak----	70	
						Eastern redcedar----	50	
						Black walnut--------	---	
						White oak-----------	---	
						White ash-----------	---	
						Black cherry--------	---	
						Black locust--------	---	
11E---------------- Peridge	3r	Moderate	Slight	Slight	Slight	Shortleaf pine------	70	Shortleaf pine, loblolly pine, black walnut, black locust, southern red oak, white ash, eastern redcedar.
						Southern red oak----	70	
						Eastern redcedar----	50	
						Black walnut--------	---	
						White oak-----------	---	
						White ash-----------	---	
						Black cherry--------	---	
						Black locust--------	---	
12A---------------- Elsah	4s	Slight	Slight	Moderate	Moderate	White oak-----------	55	Shortleaf pine, white oak, northern red oak.
						Eastern cottonwood--	---	
						Northern red oak----	60	
						Red maple-----------	60	
13----------------- Haymond	1o	Slight	Slight	Slight	Moderate	Yellow-poplar-------	100	Eastern white pine, black walnut, yellow-poplar, eastern cottonwood.
						White oak-----------	90	
						Black walnut--------	70	
						Eastern cottonwood--	105	
14E---------------- Holstein	3r	Moderate	Moderate	Moderate	Slight	White oak-----------	65	Green ash, black walnut, black cherry, white oak, northern red oak, yellow-poplar, shortleaf pine.
						Northern red oak----	80	
						Black oak-----------	75	
15B---------------- Iva	2o	Slight	Slight	Slight	Moderate	White oak-----------	75	Eastern white pine, baldcypress, white ash, yellow-poplar, sweetgum.
						Pin oak-------------	85	
						Yellow-poplar-------	85	
						Sweetgum------------	80	
16B, 16C, 16D------ Menfro	3o	Slight	Slight	Slight	Slight	White oak-----------	65	Shortleaf pine, green ash, black walnut, white oak, eastern white pine, sugar maple, yellow-poplar.
						Northern red oak----	75	
						Black oak-----------	73	
						White ash-----------	70	
						Sugar maple---------	68	
16E---------------- Menfro	3r	Moderate	Moderate	Moderate	Slight	White oak-----------	65	Shortleaf pine, green ash, black walnut, white oak, eastern white pine, sugar maple, yellow-poplar.
						Northern red oak----	75	
						Black oak-----------	73	
						White ash-----------	70	
						Sugar maple---------	68	
17F*:								
Menfro------------	3r	Moderate	Moderate	Moderate	Slight	White oak-----------	65	Shortleaf pine, green ash, black walnut, white oak, eastern white pine, sugar maple, yellow-poplar.
						Northern red oak----	75	
						Black oak-----------	73	
						White ash-----------	70	
						Sugar maple---------	68	
Clarksville-------	4f	Moderate	Severe	Severe	Slight	White oak-----------	55	White oak, shortleaf pine, green ash, yellow-poplar.
						Shortleaf pine------	55	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
18D*:								
Menfro	3o	Slight	Slight	Slight	Slight	White oak Northern red oak Black oak White ash Sugar maple	65 75 73 70 68	Shortleaf pine, green ash, black walnut, white oak, eastern white pine, sugar maple, yellow-poplar.
Bucklick	3o	Slight	Slight	Slight	Moderate	White oak Northern red oak	--- ---	Green ash, white oak, eastern white pine.
18E*:								
Menfro	3r	Moderate	Moderate	Moderate	Slight	White oak Northern red oak Black oak White ash Sugar maple	65 75 73 70 68	Shortleaf pine, green ash, black walnut, white oak, eastern white pine, sugar maple, yellow-poplar.
Bucklick	3r	Moderate	Slight	Slight	Moderate	White oak Northern red oak	--- ---	Green ash, white oak, eastern white pine.
19D*:								
Menfro	3o	Slight	Slight	Slight	Slight	White oak Northern red oak Black oak White ash Sugar maple	65 75 73 70 68	Shortleaf pine, green ash, black walnut, white oak, eastern white pine, sugar maple, yellow-poplar.
Holstein	3o	Slight	Slight	Slight	Slight	White oak Northern red oak	65 80	Shortleaf pine, green ash, black walnut, black cherry.
19E*:								
Menfro	3r	Moderate	Moderate	Moderate	Slight	White oak Northern red oak Black oak White ash Sugar maple	65 75 73 70 68	Shortleaf pine, green ash, black walnut, white oak, eastern white pine, sugar maple.
Holstein	3r	Moderate	Moderate	Moderate	Slight	White oak Northern red oak Black oak	65 80 75	Shortleaf pine, green ash, black walnut, black cherry, yellow-poplar, white oak, northern red oak.
20E Poynor	4f	Slight	Moderate	Slight	Slight	White oak Northern red oak	58 63	Shortleaf pine, white oak, green ash, black oak, sugar maple.
21D*:								
Menfro	3o	Slight	Slight	Slight	Slight	White oak Northern red oak Black oak White ash Sugar maple	65 75 73 70 68	Shortleaf pine, green ash, black walnut, white oak, eastern white pine, sugar maple.
Bucklick	3o	Slight	Slight	Slight	Moderate	White oak Northern red oak	--- ---	Green ash, white oak, eastern white pine.
22 Wilbur	1o	Slight	Slight	Slight	Severe	Yellow-poplar	100	Eastern white pine, black walnut, yellow-poplar, eastern cottonwood.
23 Wakeland	2o	Slight	Slight	Slight	Moderate	Pin oak Sweetgum Yellow-poplar Green ash	90 88 90 87	Yellow-poplar, sweetgum, pin oak, green ash.

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
31 Adler	1o	Slight	Slight	Slight	Moderate	Green ash	95	Green ash, eastern cottonwood, sweetgum, American sycamore.
						Eastern cottonwood	120	
						Water oak	100	
						Willow oak	100	
						Sweetgum	100	
						American sycamore	115	
33 Alligator	2w	Slight	Severe	Moderate	Moderate	Eastern cottonwood	95	Eastern cottonwood, green ash, sweetgum, American sycamore.
						Green ash	80	
						Water oak	90	
						Sweetgum	90	
34 Beulah	2o	Slight	Slight	Slight	--------	Eastern cottonwood	100	Eastern cottonwood, cherrybark oak, Nuttall oak, Shumard oak, water oak, willow oak, American sycamore.
						Cherrybark oak	90	
						Nuttall oak	90	
						Water oak	90	
						Willow oak	---	
						American sycamore	---	
35 Diehlstadt	2o	Slight	Slight	Slight	Slight	Eastern cottonwood	96	Eastern cottonwood, American sycamore, river birch, green ash, sweetgum.
						Sweetgum	95	
						Common hackberry	88	
						Southern red oak	84	
						Green ash	84	
36 Bosket	2o	Slight	Slight	Slight	--------	Eastern cottonwood	100	Eastern cottonwood, green ash, sweetgum, cherrybark oak, water oak, willow oak, Shumard oak, American sycamore.
						Green ash	80	
						Sweetgum	90	
						Cherrybark oak	90	
						Water oak	90	
						Willow oak	90	
37A Bowdre	1c	Slight	Moderate	Slight	Moderate	Cherrybark oak	90	Eastern cottonwood, sweetgum, green ash, cherrybark oak.
						Eastern cottonwood	110	
						Sweetgum	95	
						Water oak	95	
38A Broseley	4s	Slight	Slight	Moderate	Slight	Eastern cottonwood	80	Eastern cottonwood, pin oak.
						Pin oak	70	
39 Cairo	2w	Slight	Moderate	Severe	Severe	Pin oak	90	Pin oak, baldcypress, eastern cottonwood, red maple, water tupelo.
						Baldcypress	---	
						Swamp white oak	---	
						Eastern cottonwood	---	
						Green ash	---	
40 Clana	3s	Slight	Slight	Moderate	Slight	Eastern cottonwood	86	Eastern cottonwood, pin oak, sweetgum, American sycamore, pecan, shortleaf pine, loblolly pine, eastern white pine.
						Pin oak	80	
						Black oak	70	
						Sweetgum	---	
						Shortleaf pine	---	
41A Caruthersville	1o	Slight	Slight	Slight	Moderate	Eastern cottonwood	105	Eastern cottonwood, pin oak, silver maple, river birch, American sycamore.
						Pin oak	95	
42 Commerce	1o	Slight	Moderate	Slight	Severe	Green ash	80	Eastern cottonwood, American sycamore, pecan, sweetgum.
						Eastern cottonwood	120	
						Nuttall oak	90	
						Water oak	110	
						Pecan	---	
						American sycamore	---	
43 Cooter	3c	Slight	Moderate	Moderate	Slight	Eastern cottonwood	95	Eastern cottonwood, pin oak, baldcypress.
						Pin oak	80	
						Baldcypress	---	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
44* Crevasse	2s	Slight	Moderate	Severe	Slight	Loblolly pine	90	Loblolly pine, eastern cottonwood, sweetgum.
						Sweetgum	90	
						White oak	90	
						Eastern cottonwood	100	
45 Diehlstadt	2o	Slight	Slight	Slight	Slight	Eastern cottonwood	96	Eastern cottonwood, American sycamore, river birch, green ash, sweetgum.
						Sweetgum	95	
						Common hackberry	88	
						Southern red oak	84	
						Green ash	84	
46 Dubbs	2o	Slight	Slight	Slight	Moderate	Cherrybark oak	100	Eastern cottonwood, green ash, Nuttall oak, sweetgum, American sycamore, yellow-poplar.
						Eastern cottonwood	100	
						Green ash	80	
						Nuttall oak	95	
						Shumard oak	100	
						Sweetgum	95	
						Water oak	90	
						Willow oak	95	
47 Dundee	2o	Slight	Moderate	Slight	Moderate	Cherrybark oak	105	Cherrybark oak, eastern cottonwood, sweetgum, water oak, yellow-poplar.
						Eastern cottonwood	100	
						Sweetgum	100	
						Water oak	95	
48 Farrenburg	2o	Slight	Slight	Slight	Moderate	Eastern cottonwood	96	Eastern cottonwood, pin oak, American sycamore, sweetgum, baldcypress.
						Pin oak	86	
						Sweetgum	---	
						Baldcypress	---	
49 Jackport	2w	Slight	Severe	Moderate	Severe	Green ash	80	Green ash, eastern cottonwood, Nuttall oak, willow oak, sweetgum, cherrybark oak.
						Cherrybark oak	90	
						Water oak	90	
						Willow oak	90	
						Sweetgum	90	
50 Lilbourn	3o	Slight	Slight	Slight	Slight	Eastern cottonwood	90	Eastern cottonwood, pin oak, baldcypress, green ash.
						Pin oak	80	
						Baldcypress	---	
51A Malden	3s	Slight	Slight	Moderate	Moderate	Shortleaf pine	70	Shortleaf pine, eastern white pine, black oak.
52B, 52C, 52D3 Memphis	2o	Slight	Slight	Slight	Slight	Cherrybark oak	82	Cherrybark oak, yellow-poplar, loblolly pine, sweetgum.
						Yellow-poplar	87	
						Sweetgum	90	
52E3 Memphis	2r	Moderate	Moderate	Slight	Slight	Cherrybark oak	82	Cherrybark oak, yellow-poplar, loblolly pine, sweetgum.
						Yellow-poplar	87	
						Sweetgum	90	
53 Mhoon	1w	Slight	Severe	Moderate	Moderate	Green ash	90	Eastern cottonwood, sweetgum, cherrybark oak, green ash.
						Eastern cottonwood	110	
						Water oak	---	
						Cherrybark oak	---	
						Sweetgum	100	
						American sycamore	---	
54 Reelfoot	2o	Slight	Slight	Slight	Moderate	Cherrybark oak	100	Cherrybark oak, eastern cottonwood, green ash, sweetgum, water oak.
						Eastern cottonwood	105	
						Green ash	85	
						Sweetgum	100	
						Water oak	90	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
55 Roellen	2w	Slight	Severe	Moderate	Severe	Eastern cottonwood	100	Eastern cottonwood, sweetgum, cherrybark oak.
						Sweetgum	90	
						Water oak	90	
						Cherrybark oak	90	
56E Saffell	4f	Slight	Moderate	Moderate	Slight	Shortleaf pine	60	Loblolly pine, shortleaf pine, eastern redcedar.
						Eastern redcedar	---	
						White oak	---	
57B, 57C Scotco	3s	Slight	Moderate	Severe	Slight	Loblolly pine	65	Sweetgum, eastern cottonwood, loblolly pine.
						Sweetgum	80	
						White oak	65	
						Eastern cottonwood	85	
						Cherrybark oak	66	
58, 59 Sharkey	2w	Slight	Severe	Moderate	Severe	Green ash	85	Eastern cottonwood, sweetgum, pecan, cherrybark oak, green ash.
						Eastern cottonwood	100	
						Cherrybark oak	90	
						Sweetgum	90	
						Water oak	---	
						Pecan	---	
						American sycamore	---	
60*: Sharkey	2w	Slight	Severe	Moderate	Severe	Green ash	85	Eastern cottonwood, American sycamore, sweetgum, pecan, cherrybark oak, green ash.
						Eastern cottonwood	100	
						Cherrybark oak	90	
						Sweetgum	90	
						Water oak	---	
						Pecan	---	
						American sycamore	---	
Steele	3s	Slight	Slight	Moderate	Slight	Eastern cottonwood	85	Eastern cottonwood, pin oak, sweetgum.
						Pin oak	80	
61 Sikeston	2w	Slight	Severe	Moderate	Severe	Eastern cottonwood	100	Eastern cottonwood, pin oak, sweetgum, baldcypress.
						Pin oak	95	
						Sweetgum	95	
						Baldcypress	---	
62 Steele	3s	Slight	Slight	Moderate	Slight	Eastern cottonwood	85	Eastern cottonwood, pin oak, sweetgum.
						Pin oak	80	
63 Tiptonville	2o	Slight	Slight	Slight	Moderate	Green ash	90	Green ash, eastern cottonwood, cherrybark oak, Shumard oak, yellow-poplar.
						Eastern cottonwood	100	
						Cherrybark oak	90	
						Nuttall oak	90	
						Sweetgum	90	
64 Towosahgy	3s	Slight	Slight	Moderate	Slight	Sweetgum	80	Eastern cottonwood, pin oak, American sycamore, shortleaf pine, loblolly pine, sweetgum, eastern white pine.
						Eastern cottonwood	85	
65 Tunica	1w	Slight	Severe	Moderate	Severe	Cherrybark oak	90	Cherrybark oak, eastern cottonwood, green ash, Nuttall oak, sweetgum, American sycamore.
						Eastern cottonwood	105	
						Green ash	100	
						Nuttall oak	105	
						Sweetgum	90	

See footnote at end of table.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
66------------------ Wardell	3w	Slight	Severe	Moderate	Severe	Eastern cottonwood-- Pin oak-------------	90 80	Eastern cottonwood, pin oak, sweetgum, pecan.
70------------------ Falaya	1o	Slight	Slight	Slight	Moderate	Green ash----------- Eastern cottonwood-- Cherrybark oak------ Nuttall oak---------	92 100 102 109	Green ash, eastern cottonwood, cherrybark oak, Nuttall oak, sweetgum, yellow-poplar, baldcypress.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS

[The symbol < means less than; > means more than. Absence of an entry indicates that trees generally do not grow to the given height on that soil]

Soil name and map symbol	Trees having predicted 20-year average heights, in feet, of--				
	<8	8-15	16-25	26-35	>35
11C, 11D, 11E----- Peridge	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak.
12A--------------- Elsah	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir, Austrian pine.	Norway spruce-----	Eastern white pine, pin oak.
13---------------- Haymond	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir, Austrian pine.	Norway spruce-----	Eastern white pine, pin oak.
14E--------------- Holstein	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, blue spruce, white fir, northern white-cedar.	Norway spruce, Austrian pine.	Pin oak, eastern white pine.
15B--------------- Iva	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir, Austrian pine.	Norway spruce-----	Eastern white pine, pin oak.
16B, 16C, 16D, 16E-------------- Menfro	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak.
17F*:					
Menfro-----------	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak.
Clarksville------	Siberian peashrub	Eastern redcedar, Amur honeysuckle, autumn-olive, Tatarian honeysuckle, Washington hawthorn, radiant crabapple, lilac.	Austrian pine, jack pine, red pine, eastern white pine.	---	---

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average heights, in feet, of--				
	<8	8-15	16-25	26-35	>35
18D*, 18E*:					
Menfro	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak, silver maple.
Bucklick	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak.
19D*, 19E*:					
Menfro	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak.
Holstein	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak.
20E Poynor	Siberian peashrub	Eastern redcedar, Amur honeysuckle, autumn-olive, Tatarian honeysuckle, Washington hawthorn, radiant crabapple, lilac.	Austrian pine, jack pine, red pine, eastern white pine.	---	---
21D*:					
Menfro	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak.
Bucklick	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir.	Norway spruce, Austrian pine.	Eastern white pine, pin oak.
22 Wilbur	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern white-cedar, blue spruce, white fir, Austrian pine.	Norway spruce	Eastern white pine, pin oak.
23 Wakeland	---	Silky dogwood, Amur honeysuckle, Amur privet, American cranberrybush.	Washington hawthorn, northern-white cedar, blue spruce, white fir, Austrian pine.	Norway spruce	Eastern white pine, pin oak.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average heights, in feet, of--				
	<8	8-15	16-25	26-35	>35
31---------------- Adler	---	Autumn-olive, Amur honeysuckle, lilac, Amur maple.	Eastern redcedar--	Austrian pine, eastern white pine, honeylocust, common hackberry, green ash, pin oak.	Eastern cottonwood.
32---------------- Allemands	Common ninebark, whitebelle honeysuckle.	Amur honeysuckle, Tatarian honeysuckle, nannyberry viburnum, Amur privet.	Tall purple willow	Golden willow, black willow, baldcypress.	Eastern cottonwood, Imperial Carolina poplar.
33---------------- Alligator	Redosier dogwood--	American plum, common chokecherry.	Common hackberry, eastern redcedar.	Norway spruce, green ash, honeylocust, silver maple, golden willow, northern red oak.	Eastern cottonwood.
34---------------- Beulah	---	Amur maple, Amur honeysuckle, autumn-olive, lilac.	Russian mulberry, eastern redcedar, Russian-olive.	Eastern white pine, green ash, Austrian pine, honeylocust, common hackberry.	---
35---------------- Diehlstadt	---	Autumn-olive, Amur honeysuckle, Amur maple, lilac.	Eastern redcedar--	Green ash, Austrian pine, eastern white pine, honeylocust, common hackberry, pin oak.	Eastern cottonwood.
36---------------- Bosket	---	Autumn-olive, Amur honeysuckle, Amur maple, lilac.	Russian mulberry, Russian-olive, eastern redcedar.	Eastern white pine, green ash, Austrian pine, honeylocust, common hackberry.	---
37A--------------- Bowdre	---	Autumn-olive, Amur honeysuckle, Amur maple, lilac.	Eastern redcedar--	Green ash, Austrian pine, eastern white pine, honeylocust.	Eastern cottonwood.
38A--------------- Broseley	---	---	Eastern redcedar, jack pine, Austrian pine.	---	---
39---------------- Cairo	Redosier dogwood--	American plum, common chokecherry.	Common hackberry, eastern redcedar.	Norway spruce, green ash, honeylocust, silver maple, golden willow, northern red oak.	Eastern cottonwood.
40---------------- Clana	---	Amur honeysuckle, Amur maple, autumn-olive, lilac.	Eastern redcedar--	Eastern white pine, Austrian pine, green ash, pin oak, honeylocust, common hackberry.	Eastern cottonwood.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average heights, in feet, of--				
	<8	8-15	16-25	26-35	>35
41A Caruthersville	---	Lilac, Tatarian honeysuckle, autumn-olive.	Russian-olive, eastern redcedar.	Honeylocust, common hackberry, green ash, bur oak.	Eastern cottonwood, Siberian elm.
42 Commerce	---	Amur honeysuckle, autumn-olive, Amur maple, lilac.	Eastern redcedar, Russian-olive.	Austrian pine, green ash, honeylocust, eastern white pine, common hackberry, pin oak.	Eastern cottonwood.
43 Cooter	---	Amur honeysuckle, Amur maple, autumn-olive, lilac.	Eastern redcedar	Green ash, pin oak, Austrian pine, eastern white pine, common hackberry.	Eastern cottonwood.
44* Crevasse	Silky dogwood	Amur maple, lilac, Amur honeysuckle, autumn-olive.	Eastern redcedar	Eastern white pine, green ash, Austrian pine, honeylocust, common hackberry, pin oak.	European alder, silver maple.
45 Diehlstadt	---	Autumn-olive, Amur maple, lilac, Amur honeysuckle.	Eastern redcedar	Austrian pine, green ash, honeylocust, eastern white pine, common hackberry, pin oak.	Eastern cottonwood.
46 Dubbs	---	Autumn-olive, Amur honeysuckle, Amur maple, lilac.	Russian-olive, eastern redcedar, common hackberry.	Norway spruce, eastern white pine, green ash, honeylocust, pin oak.	---
47 Dundee	---	Autumn-olive, Amur honeysuckle, Amur maple, lilac.	Russian-olive, eastern redcedar, common hackberry.	Norway spruce, eastern white pine, green ash, honeylocust, pin oak.	---
48 Farrenburg	---	Amur honeysuckle, autumn-olive, Amur maple, lilac.	Eastern redcedar	Austrian pine, honeylocust, green ash, eastern white pine, common hackberry.	Eastern cottonwood.
49 Jackport	Redosier dogwood	American plum, common chokecherry.	Common hackberry, eastern redcedar.	Norway spruce, green ash, pin oak, honeylocust, silver maple, golden willow, northern red oak.	Eastern cottonwood.
50 Lilbourn	---	Amur honeysuckle, autumn-olive, Amur maple, lilac.	Eastern redcedar	Austrian pine, green ash, honeylocust, eastern white pine, common hackberry, pin oak.	Eastern cottonwood.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average heights, in feet, of--				
	<8	8-15	16-25	26-35	>35
51A Malden	---	---	Austrian pine, eastern redcedar, jack pine.	---	---
52B, 52C, 53D3, 52E3 Memphis	---	Amur maple, lilac, Amur honeysuckle, autumn-olive.	Russian-olive, eastern redcedar, common hackberry.	Norway spruce, eastern white pine, green ash, honeylocust, pin oak.	---
53 Mhoon	Redosier dogwood	Common chokecherry, American plum.	Eastern redcedar, common hackberry.	Norway spruce, honeylocust, silver maple, green ash, golden willow, northern red oak.	Eastern cottonwood.
54 Reelfoot	---	Amur maple, lilac, Amur honeysuckle, autumn-olive.	Eastern redcedar	Austrian pine, green ash, honeylocust, eastern white pine, common hackberry, pin oak.	Eastern cottonwood.
55 Roellen	Redosier dogwood	Common chokecherry, American plum.	Common hackberry, eastern redcedar.	Norway spruce, green ash, honeylocust, silver maple, golden willow, northern red oak.	Eastern cottonwood.
56E* Saffell	Fragrant sumac, Amur honeysuckle, lilac.	Autumn-olive	Austrian pine, eastern redcedar, honeylocust, common hackberry, green ash, bur oak, Russian-olive.	Siberian elm	---
57B, 57C Scotco	---	---	Eastern redcedar, Austrian pine, jack pine.	---	---
58, 59 Sharkey	Redosier dogwood	Common chokecherry, American plum.	Common hackberry, eastern redcedar.	Norway spruce, green ash, honeylocust, golden willow, northern red oak.	Eastern cottonwood.
60* Sharkey	Redosier dogwood	Common chokecherry, American plum.	Common hackberry, eastern redcedar.	Norway spruce, green ash, honeylocust, golden willow, northern red oak.	Eastern cottonwood.
Steele	---	Amur maple, lilac, autumn-olive, Amur honeysuckle.	Eastern redcedar	Green ash, Austrian pine, pin oak, eastern white pine, honeylocust, common hackberry.	Eastern cottonwood.

See footnote at end of table.

TABLE 7.--WINDBREAKS AND ENVIRONMENTAL PLANTINGS--Continued

Soil name and map symbol	Trees having predicted 20-year average heights, in feet, of--				
	<8	8-15	16-25	26-35	>35
61 Sikeston	Redosier dogwood	American plum, common chokecherry.	Common hackberry, eastern redcedar.	Green ash, Norway spruce, honeylocust, silver maple, golden willow, northern red oak.	Eastern cottonwood.
62 Steele	---	Amur maple, lilac, autumn-olive, Amur honeysuckle.	Eastern redcedar	Green ash, Austrian pine, pin oak, eastern white pine, honeylocust, common hackberry.	Eastern cottonwood.
63 Tiptonville	---	Amur maple, lilac, autumn-olive, Amur honeysuckle.	Eastern redcedar	Austrian pine, eastern white pine, green ash, pin oak, common hackberry, honeylocust.	Eastern cottonwood.
64 Towosahgy	Fragrant sumac, Amur honeysuckle, lilac.	Autumn-olive	Austrian pine, honeylocust, eastern redcedar, Russian-olive, common hackberry, green ash, bur oak.	Siberian elm	---
65 Tunica	---	Amur honeysuckle, autumn-olive, lilac.	Eastern redcedar	Austrian pine, green ash, eastern white pine, common hackberry, honeylocust.	Eastern cottonwood.
66 Wardell	Redosier dogwood	American plum, common chokecherry, lilac.	Eastern redcedar	Green ash, Norway spruce, honeylocust, silver maple, golden willow, northern red oak.	Eastern cottonwood.
67*. Orthents					
68*. Pits					
70 Falaya	---	Amur honeysuckle, autumn-olive, Amur maple, lilac.	Eastern redcedar	Austrian pine, pin oak, green ash, eastern white pine, common hackberry, honeylocust.	Eastern cottonwood.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
11C------------------- Peridge	Slight----------	Slight----------	Moderate: slope.	Severe: erodes easily.	Slight.
11D, 11E-------------- Peridge	Slight----------	Slight----------	Severe: slope.	Severe: erodes easily.	Slight.
12A------------------- Elsah	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.	Severe: floods.
13-------------------- Haymond	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.	Severe: floods.
14E------------------- Holstein	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
15B------------------- Iva	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Severe: erodes easily.	Moderate: wetness.
16B------------------- Menfro	Slight----------	Slight----------	Moderate: slope.	Severe: erodes easily.	Slight.
16C------------------- Menfro	Slight----------	Slight----------	Severe: slope.	Severe: erodes easily.	Slight.
16D------------------- Menfro	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
16E------------------- Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
17F*:					
Menfro----------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Clarksville-----------	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones, slope.
18D*:					
Menfro----------------	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Bucklick--------------	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: slope.
18E*:					
Menfro----------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Bucklick--------------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
19D*:					
Menfro----------------	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Holstein--------------	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight------------	Moderate: large stones, slope.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
19E*:					
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Holstein	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
20E Poynor	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: small stones.	Severe: small stones, slope.
21D*:					
Menfro	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Bucklick	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
22 Wilbur	Severe: floods.	Moderate: floods.	Severe: floods.	Severe: erodes easily.	Severe: floods.
23 Wakeland	Severe: floods, wetness.	Moderate: floods, wetness.	Severe: wetness, floods.	Moderate: floods, wetness.	Severe: floods.
31 Adler	Severe: floods.	Moderate: wetness.	Moderate: wetness.	Slight	Slight.
32 Allemands	Severe: floods, ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: ponding, floods.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
33 Alligator	Severe: floods, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: wetness, too clayey.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
34 Beulah	Slight	Slight	Slight	Slight	Slight.
35 Diehlstadt	Severe: floods, wetness.	Moderate: wetness, too sandy.	Severe: wetness.	Moderate: wetness, too sandy.	Moderate: wetness, droughty, floods.
36 Bosket	Slight	Slight	Slight	Slight	Slight.
37A Bowdre	Severe: floods.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
38A Broseley	Slight	Slight	Slight	Slight	Moderate: droughty.
39 Cairo	Severe: floods, wetness, percs slowly.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness, floods.	Severe: wetness, too clayey.	Severe: wetness, floods, too clayey.
40 Clana	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight	Moderate: droughty.
41A Caruthersville	Severe: floods.	Moderate: wetness.	Moderate: wetness.	Severe: erodes easily.	Slight.
42 Commerce	Severe: floods.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
43 Cooter	Severe: floods.	Moderate: wetness.	Moderate: wetness, floods.	Severe: erodes easily.	Moderate: droughty, floods.
44* Crevasse	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.	Severe: droughty, floods.
45 Diehlstadt	Severe: floods, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty, floods.
46 Dubbs	Slight	Slight	Slight	Slight	Slight.
47 Dundee	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: erodes easily.	Moderate: wetness.
48 Farrenburg	Severe: floods.	Moderate: wetness.	Moderate: wetness.	Slight	Slight.
49 Jackport	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, erodes easily.	Severe: wetness.
50 Lilbourn	Severe: floods, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
51A Malden	Slight	Slight	Slight	Slight	Severe: droughty.
52B Memphis	Slight	Slight	Moderate: slope.	Severe: erodes easily.	Slight.
52C Memphis	Slight	Slight	Severe: slope.	Severe: erodes easily.	Slight.
52D3 Memphis	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
52E3 Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
53 Mhoon	Severe: wetness, floods.	Severe: wetness.	Severe: wetness.	Severe: wetness, erodes easily.	Severe: wetness.
54 Reelfoot	Severe: floods.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
55 Roellen	Severe: floods, wetness, too clayey.	Severe: wetness, too clayey.	Severe: too clayey, wetness.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
56E* Saffell	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
57B Scotco	Severe: too sandy.	Severe: too sandy.	Moderate: slope.	Severe: too sandy.	Severe: droughty.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
57C Scotco	Severe: too sandy.	Severe: too sandy.	Severe: slope.	Severe: too sandy.	Severe: droughty.
58 Sharkey	Severe: wetness, percs slowly, floods.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
59 Sharkey	Severe: wetness, percs slowly, floods.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.
60*:					
Sharkey	Severe: wetness, percs slowly, floods.	Severe: wetness, too clayey, percs slowly.	Severe: too clayey, wetness.	Severe: wetness, too clayey.	Severe: wetness, too clayey.
Steele	Severe: floods.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
61 Sikeston	Severe: floods, wetness.	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.	Severe: wetness, floods.
62 Steele	Severe: floods, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: wetness.
63 Tiptonville	Slight	Slight	Slight	Slight	Slight.
64 Towosahgy	Slight	Slight	Slight	Slight	Slight.
65 Tunica	Severe: percs slowly, floods.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
66 Wardell	Severe: floods, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, erodes easily.	Severe: wetness.
67*. Orthents					
68*. Pits					
70 Falaya	Severe: floods, wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness, floods.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
11C Peridge	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
11D, 11E Peridge	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
12A Elsah	Fair	Fair	Fair	Good	Fair	Poor	Poor	Fair	Good	Poor.
13 Haymond	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
14E Holstein	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
15B Iva	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
16B Menfro	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
16C, 16D Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
16E Menfro	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
17F*:										
Menfro	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Clarksville	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
18D*:										
Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Bucklick	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
18E*:										
Menfro	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Bucklick	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
19D*:										
Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Holstein	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
19E*:										
Menfro	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Holstein	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
20E----------------- Poynor	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
21D*:										
Menfro-------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Bucklick-----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
22----------------- Wilbur	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
23----------------- Wakeland	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
31----------------- Adler	Good	Good	Good	Good	Fair	Poor	Poor	Good	Good	Poor.
32----------------- Allemands	Poor	Fair	Fair	Fair	---	Good	Very poor.	Very poor.	Very poor.	Good.
33----------------- Alligator	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
34----------------- Beulah	Fair	Fair	Fair	Good	Poor	Very poor.	Very poor.	Fair	Good	Very poor.
35----------------- Diehlstadt	Fair	Good	Good	Fair	Fair	Good	Fair	Good	Fair	Fair.
36----------------- Bosket	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
37A---------------- Bowdre	Fair	Fair	Fair	Fair	---	Poor	Fair	Fair	Fair	Poor.
38A---------------- Broseley	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
39----------------- Cairo	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
40----------------- Clana	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
41A---------------- Caruthersville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
42----------------- Commerce	Good	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.
43----------------- Cooter	Fair	Fair	Poor	Good	Good	Poor	Poor	Fair	Fair	Poor.
44*---------------- Crevasse	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
45----------------- Diehlstadt	Fair	Good	Good	Fair	Fair	Good	Fair	Good	Fair	Fair.
46----------------- Dubbs	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
47----------------- Dundee	Fair	Good	Good	Good	---	Fair	Fair	Good	Good	Fair.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
48----------------- Farrenburg	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
49----------------- Jackport	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
50----------------- Lilbourn	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
51A---------------- Malden	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
52B---------------- Memphis	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
52C, 52D3---------- Memphis	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
52E3--------------- Memphis	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
53----------------- Mhoon	Fair	Fair	Fair	Good	---	Good	Good	Fair	Good	Good.
54----------------- Reelfoot	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
55----------------- Roellen	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
56E*--------------- Saffell	Very poor.	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
57B, 57C----------- Scotco	Poor	Fair	Good	Fair	Fair	Poor	Poor	Fair	Fair	Very poor.
58, 59------------- Sharkey	Fair	Fair	Fair	Good	---	Good	Good	Fair	Good	Good.
60*:										
Sharkey------------	Fair	Fair	Fair	Good	---	Good	Good	Fair	Good	Good.
Steele-------------	Poor	Fair	Good	Good	Good	Poor	Poor	Poor	Good	Poor.
61----------------- Sikeston	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
62----------------- Steele	Poor	Fair	Good	Good	Good	Poor	Poor	Poor	Good	Poor.
63----------------- Tiptonville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
64----------------- Towosahgy	Good	Good	Good	Good	Good	Good	Fair	Good	Good	Fair.
65----------------- Tunica	Fair	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
66----------------- Wardell	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
67*. Orthents										

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
68*. Pits										
70------------------ Falaya	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
11C Peridge	Moderate: too clayey.	Slight	Slight	Moderate: slope.	Severe: low strength.	Slight.
11D Peridge	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate. slope.
11E Peridge	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: slope.
12A Elsah	Severe: cutbanks cave, large stones.	Severe: floods, large stones.	Severe: floods, large stones.	Severe: floods, large stones.	Severe: floods, large stones.	Severe: floods.
13 Haymond	Moderate: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods, frost action.	Severe: floods.
14E Holstein	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
15B Iva	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, frost action.	Moderate: wetness.
16B Menfro	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: frost action, low strength.	Slight.
16C Menfro	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: frost action, low strength.	Slight.
16D Menfro	Moderate: slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: frost action, low strength.	Moderate: slope.
16E Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, low strength, slope.	Severe: slope.
17F*:						
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, low strength, slope.	Severe: slope.
Clarksville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
18D*:						
Menfro	Moderate: slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: frost action, low strength.	Moderate: slope.
Bucklick	Moderate: depth to rock, too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
18E*:						
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, low strength, slope.	Severe: slope.
Bucklick	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
19D*:						
Menfro	Moderate: slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: frost action, low strength.	Moderate: slope.
Holstein	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
19E*:						
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: frost action, low strength, slope.	Severe: slope.
Holstein	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
20E Poynor	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: small stones, slope.
21D*:						
Menfro	Moderate: slope.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: frost action, low strength.	Moderate: slope.
Bucklick	Moderate: depth to rock, too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
22 Wilbur	Moderate: wetness, floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods, frost action.	Severe: floods.
23 Wakeland	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, frost action.	Severe: floods.
31 Adler	Severe: wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Moderate: wetness, floods, low strength.	Slight.
32 Allemands	Severe: excess humus, ponding.	Severe: floods, shrink-swell, low strength.	Severe: floods, ponding, shrink-swell.	Severe: floods, ponding, low strength.	Severe: floods, excess humus, ponding.	Severe: excess humus, floods, ponding.
33 Alligator	Severe: wetness.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: low strength, wetness.	Severe: wetness, too clayey.
34 Beulah	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
35 Diehlstadt	Severe: cutbanks cave, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Moderate: wetness, droughty, floods.
36 Bosket	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Slight.
37A Bowdre	Severe: wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Moderate: floods.	Moderate: wetness.
38A Broseley	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
39 Cairo	Severe: cutbanks cave, wetness.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness.	Severe: floods, wetness, shrink-swell.	Severe: low strength, wetness, floods.	Severe: wetness, floods, too clayey.
40 Clana	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
41A Caruthersville	Severe: cutbanks cave, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Moderate: wetness, floods.	Slight.
42 Commerce	Severe: wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: low strength.	Moderate: wetness.
43 Cooter	Severe: cutbanks cave, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: floods.	Moderate: droughty, floods.
44* Crevasse	Severe: cutbanks cave.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: droughty, floods.
45 Diehlstadt	Severe: cutbanks cave, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Moderate: wetness, droughty, floods.
46 Dubbs	Slight	Slight	Slight	Slight	Slight	Slight.
47 Dundee	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
48 Farrenburg	Severe: wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Moderate: wetness, floods.	Slight.
49 Jackport	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
50 Lilbourn	Severe: cutbanks cave, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness.	Severe: wetness.
51A Malden	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
52B----- Memphis	Slight-----	Slight-----	Slight-----	Slight-----	Severe: low strength.	Slight.
52C----- Memphis	Slight-----	Slight-----	Slight-----	Moderate: slope.	Severe: low strength.	Slight.
52D3----- Memphis	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
52E3----- Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
53----- Mhoon	Severe: wetness.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: low strength, wetness.	Severe: wetness.
54----- Reelfoot	Severe: wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods.	Severe: low strength.	Moderate: wetness.
55----- Roellen	Severe: wetness.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness, shrink-swell.	Severe: low strength, wetness, floods.	Severe: wetness, too clayey.
56E*----- Saffell	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
57B----- Scotco	Severe: cutbanks cave.	Slight-----	Slight-----	Slight-----	Slight-----	Severe: droughty.
57C----- Scotco	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
58----- Sharkey	Severe: wetness.	Severe: wetness, shrink-swell, floods.	Severe: wetness, shrink-swell, floods.	Severe: wetness, shrink-swell, floods.	Severe: low strength, wetness.	Severe: wetness, too clayey.
59----- Sharkey	Severe: wetness.	Severe: wetness, shrink-swell, floods.	Severe: wetness, shrink-swell, floods.	Severe: wetness, shrink-swell, floods.	Severe: low strength, wetness.	Severe: wetness.
60*:						
Sharkey-----	Severe: wetness.	Severe: wetness, shrink-swell, floods.	Severe: wetness, shrink-swell, floods.	Severe: wetness, shrink-swell, floods.	Severe: low strength, wetness.	Severe: wetness, too clayey.
Steele-----	Severe: cutbanks cave, wetness.	Severe: floods.	Severe: floods, wetness, shrink-swell.	Severe: floods.	Moderate: wetness, floods.	Moderate: wetness.
61----- Sikeston	Severe: cutbanks cave, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: low strength, wetness, floods.	Severe: wetness, floods.
62----- Steele	Severe: cutbanks cave, wetness.	Severe: floods.	Severe: floods, wetness, shrink-swell.	Severe: floods.	Moderate: wetness, floods.	Moderate: wetness.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
63---------------- Tiptonville	Moderate: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength.	Slight.
64---------------- Towosahgy	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Slight.
65---------------- Tunica	Severe: wetness.	Severe: shrink-swell, floods.	Severe: wetness, shrink-swell, floods.	Severe: shrink-swell, floods.	Severe: low strength, shrink-swell.	Moderate: wetness.
66---------------- Wardell	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness, shrink-swell.	Severe: floods, wetness.	Severe: low strength, wetness.	Severe: wetness.
67*. Orthents						
68*. Pits						
70---------------- Falaya	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods.	Moderate: wetness, floods.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
11C Peridge	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, thin layer.
11D Peridge	Moderate: percs slowly, slope.	Severe: slope.	Moderate: too clayey, slope.	Moderate: slope.	Fair: too clayey, thin layer, slope.
11E Peridge	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
12A Elsah	Severe: floods, large stones.	Severe: seepage, floods, large stones.	Severe: floods, seepage, large stones.	Severe: floods, seepage.	Poor: seepage, large stones.
13 Haymond	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
14E Holstein	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
15B Iva	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
16B Menfro	Slight	Moderate: slope, seepage.	Moderate: too clayey.	Slight	Fair: too clayey.
16C Menfro	Slight	Severe: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
16D Menfro	Moderate: slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: slope, too clayey.
16E Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
17F*:					
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Clarksville	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, too clayey.	Severe: seepage, slope.	Poor: too clayey, small stones, slope.
18D*:					
Menfro	Moderate: slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: slope, too clayey.
Bucklick	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
18E*:					
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
18E*:					
Bucklick	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
19D*:					
Menfro	Moderate: slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: slope, too clayey.
Holstein	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope.
19E*:					
Menfro	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Holstein	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
20E Poynor	Severe: slope.	Severe: slope.	Severe: slope, too clayey.	Severe: seepage, slope.	Poor: too clayey, hard to pack, slope.
21D*:					
Menfro	Moderate: slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: slope, too clayey.
Bucklick	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
22 Wilbur	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Fair: wetness.
23 Wakeland	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
31 Adler	Severe: wetness.	Severe: floods, wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
32 Allemands	Severe: ponding, floods.	Severe: ponding, seepage, excess humus.	Severe: ponding, too clayey, excess humus.		Poor: too clayey, ponding, excess humus.
33 Alligator	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
34 Beulah	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
35 Diehlstadt	Severe: floods, wetness, poor filter.	Severe: seepage, floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Poor: seepage, too sandy, wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
36 Bosket	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
37A Bowdre	Severe: wetness.	Severe: wetness, seepage.	Severe: seepage, wetness.	Moderate: floods, wetness.	Fair: wetness.
38A Broseley	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
39 Cairo	Severe: floods, wetness, percs slowly.	Severe: seepage, floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Poor: too sandy, wetness.
40 Clana	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
41A Caruthersville	Severe: wetness.	Severe: seepage, floods, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy.
42 Commerce	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: thin layer.
43 Cooter	Severe: floods, wetness, poor filter.	Severe: seepage, floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Poor: too sandy.
44* Crevasse	Severe: floods, wetness, poor filter.	Severe: seepage, floods.	Severe: floods, seepage, wetness.	Severe: floods, seepage.	Poor: seepage, too sandy.
45 Diehlstadt	Severe: floods, wetness, poor filter.	Severe: seepage, floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, seepage, wetness.	Poor: seepage, too sandy, wetness.
46 Dubbs	Slight	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
47 Dundee	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
48 Farrenburg	Severe: wetness.	Severe: floods, wetness.	Moderate: floods, wetness.	Moderate: floods, wetness.	Fair: wetness.
49 Jackport	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
50 Lilbourn	Severe: wetness.	Severe: seepage, floods, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: wetness.
51A Malden	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
52B----------------- Memphis	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight-----------	Good.
52C----------------- Memphis	Moderate: percs slowly.	Severe: slope.	Moderate: too clayey.	Slight-----------	Good.
52D3---------------- Memphis	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
52E3---------------- Memphis	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
53------------------ Mhoon	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: hard to pack, wetness.
54------------------ Reelfoot	Severe: wetness.	Severe: floods, wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
55------------------ Roellen	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness, too clayey.	Severe: floods, wetness.	Poor: too clayey, hard to pack, wetness.
56E*---------------- Saffell	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: slope.	Poor: small stones, slope.
57B----------------- Scotco	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
57C----------------- Scotco	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
58, 59-------------- Sharkey	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
60*:					
Sharkey------------	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Steele-------------	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness, too clayey.	Severe: seepage.	Poor: too clayey, hard to pack.
61------------------ Sikeston	Severe: floods, wetness, percs slowly.	Severe: seepage, floods, wetness.	Severe: floods, seepage, wetness.	Severe: floods, wetness.	Poor: wetness.
62------------------ Steele	Severe: wetness, percs slowly.	Severe: seepage, wetness.	Severe: wetness, too clayey.	Severe: seepage.	Poor: too clayey, hard to pack.
63------------------ Tiptonville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
64------------------ Towosahgy	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
65------------------ Tunica	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
66------------------ Wardell	Severe: wetness, percs slowly.	Severe: floods, wetness.	Severe: seepage, wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
67*. Orthents					
68*. Pits					
70------------------ Falaya	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
11C, 11D, 11E Peridge	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, area reclaim.
12A Elsah	Poor: large stones.	Improbable: small stones, large stones.	Improbable: large stones.	Poor: large stones, area reclaim.
13 Haymond	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
14E Holstein	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
15B Iva	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
16B, 16C Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
16D Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
16E Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
17F*: Menfro	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Clarksville	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
18D*: Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
Bucklick	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
18E*: Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Bucklick	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
19D*: Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
Holstein	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
19E*:				
Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Holstein	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
20E Poynor	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
21D*:				
Menfro	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
Bucklick	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
22 Wilbur	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
23 Wakeland	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
31 Adler	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
32 Allemands	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, wetness.
33 Alligator	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
34 Beulah	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
35 Diehlstadt	Fair: wetness.	Probable	Improbable: too sandy.	Poor: thin layer.
36 Bosket	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
37A Bowdre	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
38A Broseley	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
39 Cairo	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
40 Clana	Fair: wetness.	Probable	Improbable: too sandy.	Fair: too sandy.
41A Caruthersville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer.
42 Commerce	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
43 Cooter	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
44* Crevasse	Good	Probable	Improbable: too sandy.	Good.
45 Diehlstadt	Fair: wetness.	Probable	Improbable: too sandy.	Poor: thin layer.
46 Dubbs	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
47 Dundee	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
48 Farrenburg	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
49 Jackport	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
50 Lilbourn	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
51A Malden	Good	Probable	Improbable: too sandy.	Fair: too sandy.
52B, 52C Memphis	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
52D3 Memphis	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
52E3 Memphis	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
53 Mhoon	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
54 Reelfoot	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
55 Roellen	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
56E* Saffell	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
57B, 57C Scotco	Good	Probable	Improbable: too sandy.	Poor: too sandy.
58 Sharkey	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
59 Sharkey	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
60*:				
Sharkey	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Steele	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
61 Sikeston	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
62 Steele	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
63 Tiptonville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
64 Towosahgy	Good	Probable	Improbable: too sandy.	Fair: thin layer.
65 Tunica	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
66 Wardell	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
67*. Orthents				
68*. Pits				
70 Falaya	Fair: thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
11C, 11D, 11E Peridge	Moderate: seepage.	Moderate: piping.	Deep to water	Slope, erodes easily	Erodes easily	Erodes easily.
12A Elsah	Severe: seepage.	Severe: seepage, large stones.	Deep to water	Large stones	Large stones, erodes easily	Large stones, erodes easily.
13 Haymond	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily, floods.	Erodes easily	Erodes easily.
14E Holstein	Severe: slope.	Moderate: piping.	Deep to water	Slope	Slope	Slope.
15B Iva	Moderate: seepage, slope.	Severe: thin layer, wetness.	Percs slowly, frost action, slope.	Wetness, percs slowly, slope.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
16B, 16C Menfro	Moderate: slope, seepage.	Slight	Deep to water	Slope, erodes easily	Erodes easily	Erodes easily.
16D, 16E Menfro	Severe: slope.	Slight	Deep to water	Slope, erodes easily	Slope, erodes easily	Slope, erodes easily.
17F*:						
Menfro	Severe: slope.	Slight	Deep to water	Slope, erodes easily	Slope, erodes easily	Slope, erodes easily.
Clarksville	Severe: seepage, slope.	Moderate: large stones.	Deep to water	Droughty, slope.	Slope, large stones.	Large stones, slope, droughty.
18D*, 18E*:						
Menfro	Severe: slope.	Slight	Deep to water	Slope, erodes easily	Slope, erodes easily	Slope, erodes easily.
Bucklick	Severe: slope.	Moderate: thin layer, hard to pack.	Deep to water	Slope	Slope	Slope.
19D*, 19E*:						
Menfro	Severe: slope.	Slight	Deep to water	Slope, erodes easily	Slope, erodes easily	Slope, erodes easily.
Holstein	Severe: slope.	Moderate: piping.	Deep to water	Slope	Slope	Slope.
20E Poynor	Severe: slope.	Severe: hard to pack.	Deep to water	Droughty, slope.	Slope	Large stones, slope, droughty.
21D*:						
Menfro	Severe: slope.	Slight	Deep to water	Slope, erodes easily	Slope, erodes easily	Slope, erodes easily.
Bucklick	Severe: slope.	Moderate: thin layer, hard to pack.	Deep to water	Slope	Slope	Slope.
22 Wilbur	Moderate: seepage.	Severe: piping.	Deep to water	Erodes easily, floods.	Erodes easily	Erodes easily.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
23 Wakeland	Moderate: seepage.	Severe: piping, wetness.	Floods, frost action.	Wetness, erodes easily floods.	Erodes easily, wetness.	Wetness, erodes easily.
31 Adler	Moderate: seepage.	Severe: piping.	Favorable	Wetness, erodes easily	Erodes easily, wetness.	Erodes easily.
32 Allemands	Slight	Severe: piping, ponding, excess humus.	Floods, percs slowly.	Not needed	Ponding, percs slowly.	Wetness, percs slowly.
33 Alligator	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, slow intake, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
34 Beulah	Severe: seepage.	Severe: piping.	Deep to water	Favorable	Favorable	Favorable.
35 Diehlstadt	Severe: seepage.	Severe: seepage, piping, wetness.	Floods, cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
36 Bosket	Severe: seepage.	Severe: piping.	Deep to water	Favorable	Favorable	Favorable.
37A Bowdre	Moderate: seepage.	Severe: piping.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness.	Erodes easily, percs slowly.
38A Broseley	Severe: seepage.	Severe: piping.	Deep to water	Droughty, fast intake, soil blowing.	Soil blowing	Droughty.
39 Cairo	Severe: seepage.	Severe: seepage, piping, wetness.	Percs slowly, floods.	Wetness, droughty, slow intake.	Wetness, too sandy.	Wetness, droughty, percs slowly.
40 Clana	Severe: seepage.	Severe: seepage, piping.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Droughty.
41A Caruthersville	Severe: seepage.	Severe: piping.	Cutbanks cave	Wetness, soil blowing, erodes easily	Erodes easily, wetness, too sandy.	Erodes easily.
42 Commerce	Moderate: seepage.	Severe: thin layer, wetness.	Favorable	Wetness	Erodes easily, wetness.	Erodes easily.
43 Cooter	Severe: seepage.	Severe: seepage, piping.	Percs slowly, floods.	Wetness, droughty.	Erodes easily, wetness, too sandy.	Erodes easily, droughty, percs slowly.
44* Crevasse	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty	Too sandy	Droughty.
45 Diehlstadt	Severe: seepage.	Severe: seepage, piping, wetness.	Floods, cutbanks cave	Wetness, droughty.	Wetness, too sandy, soil blowing.	Wetness, droughty.
46 Dubbs	Severe: seepage.	Severe: piping.	Deep to water	Erodes easily	Erodes easily	Erodes easily.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
47 Dundee	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness, rooting depth	Erodes easily, wetness.	Erodes easily, rooting depth.
48 Farrenburg	Moderate: seepage.	Severe: piping.	Favorable	Wetness, soil blowing.	Wetness, soil blowing.	Favorable.
49 Jackport	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, percs slowly, erodes easily	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
50 Lilbourn	Severe: seepage.	Severe: piping, wetness.	Cutbanks cave	Wetness, soil blowing.	Wetness, too sandy, soil blowing.	Wetness.
51A Malden	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty.
52B, 52C Memphis	Moderate: seepage, slope.	Severe: piping.	Deep to water	Slope, erodes easily	Erodes easily	Erodes easily.
52D3, 52E3 Memphis	Severe: slope.	Severe: piping.	Deep to water	Slope, erodes easily	Slope, erodes easily	Slope, erodes easily.
53 Mhoon	Slight	Severe: wetness.	Percs slowly	Wetness, percs slowly, erodes easily	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
54 Reelfoot	Moderate: seepage.	Severe: piping, wetness.	Favorable	Wetness, erodes easily	Erodes easily, wetness.	Erodes easily.
55 Roellen	Moderate: seepage.	Severe: hard to pack, wetness.	Percs slowly, floods.	Wetness, slow intake, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
56E* Saffell	Severe: slope, seepage.	Slight	Deep to water	Droughty, slope.	Slope	Slope, droughty.
57B Scotco	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Too sandy, soil blowing.	Droughty.
57C Scotco	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Droughty, fast intake, soil blowing.	Slope, too sandy, soil blowing.	Slope, droughty.
58 Sharkey	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
59 Sharkey	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
60*:						
Sharkey	Slight	Severe: hard to pack, wetness.	Percs slowly	Wetness, slow intake, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Steele	Severe: seepage.	Severe: hard to pack.	Percs slowly	Wetness, fast intake, soil blowing.	Wetness, soil blowing, percs slowly.	Percs slowly.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
61----------------- Sikeston	Moderate: seepage.	Severe: wetness.	Floods---------	Wetness, floods.	Wetness--------	Wetness.
62----------------- Steele	Severe: seepage.	Severe: hard to pack.	Percs slowly	Wetness, fast intake, soil blowing.	Wetness, soil blowing, percs slowly.	Percs slowly.
63----------------- Tiptonville	Moderate: seepage.	Severe: piping.	Favorable------	Wetness--------	Wetness--------	Favorable.
64----------------- Towosahgy	Severe: seepage.	Severe: seepage, piping.	Deep to water	Favorable------	Too sandy------	Favorable.
65----------------- Tunica	Moderate: seepage.	Severe: piping, wetness.	Percs slowly	Wetness, percs slowly.	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
66----------------- Wardell	Slight----------	Severe: wetness.	Percs slowly	Wetness, percs slowly, erodes easily	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
67*. Orthents						
68*. Pits						
70----------------- Falaya	Moderate: seepage.	Severe: piping, wetness.	Floods---------	Wetness, percs slowly, erodes easily	Erodes easily, wetness.	Wetness, erodes easily.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
11C, 11D, 11E---- Peridge	0-7	Silt loam--------	ML, CL-ML	A-4	0	95-100	90-100	85-90	80-85	<20	NP-5
	7-43	Silty clay loam, silt loam.	CL	A-6	0	95-100	90-100	85-95	80-95	30-40	11-20
	43-56	Cherty silty clay loam, silty clay loam.	CL, SC, GC	A-6	0	55-100	50-100	45-90	40-85	30-40	11-20
	56-60	Silty clay, clay, gravelly silty clay.	CL, SC, GC	A-7, A-6	0	55-100	50-100	45-90	40-85	35-50	15-25
12A-------------- Elsah	0-20	Silt loam--------	CL	A-4, A-6	0-15	95-100	90-100	90-100	85-100	22-32	8-15
	20-60	Cherty loam, very cherty loam, very cherty silt loam.	SM, ML, CL, SC	A-2, A-4	15-60	80-90	70-85	60-80	30-70	<30	NP-8
13--------------- Haymond	0-6	Silt loam--------	ML	A-4	0	100	100	90-100	80-90	27-36	4-10
	6-46	Silt loam--------	ML	A-4	0	100	100	90-100	80-90	27-36	4-10
	46-60	Fine sandy loam, silt loam, loam.	ML, SM	A-4	0	95-100	90-100	80-100	35-90	27-36	4-10
14E-------------- Holstein	0-5	Loam-------------	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-90	55-75	20-30	5-15
	5-12	Clay loam, loam	CL	A-4, A-6	0-5	95-100	90-100	80-95	60-80	25-35	8-15
	12-24	Clay loam--------	CL	A-6	0-5	95-100	90-100	80-95	60-80	30-40	11-20
	24-60	Sandy clay loam, clay loam, loam.	SC, CL	A-4, A-6	0-5	95-100	85-100	75-90	36-55	25-35	8-15
15B-------------- Iva	0-30	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-100	25-35	5-15
	30-52	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	80-100	35-50	15-30
	52-60	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	25-35	5-15
16B, 16C, 16D, 16E------------ Menfro	0-14	Silt loam--------	CL	A-6	0	100	100	95-100	92-100	25-35	11-20
	14-59	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	95-100	35-45	20-25
	59-76	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	92-100	25-35	5-15
17F*:											
Menfro----------	0-12	Silt loam--------	CL	A-6	0	100	100	95-100	92-100	25-35	11-20
	12-44	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	95-100	35-45	20-25
	44-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	92-100	25-35	5-15
Clarksville-----	0-8	Cherty silt loam	GC, SC, SM-SC, GP-GC	A-2-4, A-2-6	5-20	30-70	10-60	5-50	5-35	20-40	5-15
	8-39	Very cherty silty clay loam, very cherty silty clay.	GC, SC, SP-SC, GP-GC	A-2-6, A-6	5-20	30-70	10-60	10-50	5-45	30-40	15-25
	39-60	Very cherty silty clay.	GC, SC, GP-GC, SP-SC	A-2-7, A-7	5-20	30-70	10-60	10-50	10-45	55-75	35-45
18D*:											
Menfro----------	0-14	Silt loam--------	CL	A-6	0	100	100	95-100	92-100	25-35	11-20
	14-38	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	95-100	35-45	20-25
	38-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	92-100	25-35	5-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
18D*: Bucklick--------	0-6	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	25-40	5-15
	6-33	Silty clay loam, silty clay.	CH, CL	A-7, A-6	0	100	100	95-100	90-99	35-60	20-35
	33-51	Cherty silty clay, cherty silty clay loam.	CH, CL, SC, GC	A-7	0-15	70-100	65-100	35-100	35-95	40-55	25-35
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
18E*: Menfro----------	0-6	Silt loam--------	CL	A-6	0	100	100	95-100	92-100	25-35	11-20
	6-40	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	95-100	35-45	20-25
	40-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	92-100	25-35	5-15
Bucklick--------	0-6	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	25-40	5-15
	6-39	Silty clay loam, silty clay.	CH, CL	A-7, A-6	0	100	100	95-100	90-99	35-60	20-35
	39-60	Cherty silty clay, cherty silty clay loam.	CH, CL, SC, GC	A-7	0-15	70-100	65-100	35-100	35-95	40-55	25-35
19D*: Menfro----------	0-22	Silt loam--------	CL	A-6	0	100	100	95-100	92-100	25-35	11-20
	22-38	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	95-100	35-45	20-25
	38-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	92-100	25-35	5-15
Holstein--------	0-8	Silt loam--------	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-90	55-75	20-30	5-15
	8-45	Clay loam--------	CL	A-6	0-5	95-100	90-100	80-95	60-80	30-40	11-20
	45-65	Sandy clay loam, clay loam.	SC, CL	A-4, A-6	0-5	95-100	85-100	75-90	36-55	25-35	8-15
19E*: Menfro----------	0-5	Silt loam--------	CL	A-6	0	100	100	95-100	92-100	25-35	11-20
	5-40	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	95-100	35-45	20-25
	40-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	92-100	25-35	5-15
Holstein--------	0-5	Silt loam--------	CL-ML, CL	A-4, A-6	0-10	90-100	85-100	70-90	55-75	20-30	5-15
	5-12	Clay loam, loam	CL	A-4, A-6	0-5	95-100	90-100	80-95	60-80	25-35	8-15
	12-55	Clay loam--------	CL	A-6	0-5	95-100	90-100	80-95	60-80	30-40	11-20
	55-60	Sandy clay loam, clay loam.	SC, CL	A-4, A-6	0-5	95-100	85-100	75-90	36-55	25-35	8-15
20E-------------- Poynor	0-19	Cherty silt loam	GM, GM-GC, SM-SC, SM	A-1, A-4, A-2-4	5-20	35-70	15-65	10-60	10-45	20-30	2-8
	19-24	Very cherty silty clay loam, cherty silty clay loam.	GC, GP-GC, SC, SP-SC	A-6, A-2-6	5-20	30-70	10-60	10-50	5-45	25-40	10-20
	24-64	Silty clay, clay	CH, MH	A-7	0-10	90-100	90-100	85-95	70-90	51-70	25-35
21D*: Menfro----------	0-14	Silt loam--------	CL	A-6	0	100	100	95-100	92-100	25-35	11-20
	14-34	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	95-100	35-45	20-25
	34-60	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	92-100	25-35	5-15

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
21D*:											
Bucklick--------	0-6	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	95-100	80-95	25-40	5-15
	6-33	Silty clay loam, silty clay.	CH, CL	A-7, A-6	0	100	100	95-100	90-99	35-60	20-35
	33-51	Cherty silty clay, cherty silty clay loam.	CH, CL, SC, GC	A-7	0-15	70-100	65-100	35-100	35-95	40-55	25-35
	51	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
22---------------	0-9	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	25-35	5-15
Wilbur	9-60	Silt loam--------	CL, CL-ML	A-4, A-6	0	100	100	90-100	70-90	25-35	5-15
23---------------	0-12	Silt loam--------	ML	A-4	0	100	100	90-100	80-90	27-36	4-10
Wakeland	12-60	Silt loam--------	ML	A-4	0	100	100	90-100	80-90	27-36	4-10
31---------------	0-8	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	95-100	<28	NP-7
Adler	8-60	Silt loam, silt, very fine sandy loam.	ML, CL, CL-ML	A-4	0	100	100	95-100	60-95	<30	NP-10
32---------------	0-39	Sapric material--	PT	A-8	0	---	---	---	---	---	---
Allemands	39-60	Clay, very fine sandy loam, silty clay loam.	CH, CL, ML, MH	A-7-6, A-6, A-4	0	100	100	85-95	75-95	30-75	6-45
33---------------	0-6	Silty clay-------	CH	A-7	0	100	100	95-100	90-100	52-75	30-45
Alligator	6-46	Silty clay, clay	CH	A-7	0	100	100	100	95-100	62-94	33-64
	46-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	95-100	62-94	33-64
34---------------	0-8	Fine sandy loam	SM	A-2, A-4	0	100	100	75-100	25-45	---	NP
Beulah	8-40	Fine sandy loam, very fine sandy loam, loam.	SM, ML	A-2, A-4	0	100	100	85-100	25-60	---	NP
	40-60	Loamy sand, sand, loamy fine sand, sandy loam.	SM	A-2, A-4	0	100	100	65-100	15-45	---	NP
35---------------	0-18	Loamy coarse sand	SM	A-2-4	0	100	100	50-75	15-35	<21	NP-4
Diehlstadt	18-60	Sand, coarse sand, fine sand.	SM, SP-SM, SP	A-2-4, A-3	0	100	100	50-75	2-15	---	NP
36---------------	0-21	Fine sandy loam	SM	A-2, A-4	0	100	100	75-100	25-45	<20	NP-3
Bosket	21-45	Sandy clay loam, clay loam, fine sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	100	85-100	30-70	25-40	5-17
	45-60	Fine sandy loam, sandy loam, sand.	SM	A-2, A-4	0	100	100	65-100	15-45	<20	NP-3
37A--------------	0-17	Silty clay loam	CH	A-7	0	100	100	95-100	90-95	51-65	28-40
Bowdre	17-30	Silt loam, loam	CL-ML, CL, ML	A-4, A-6	0	100	100	90-100	70-90	25-35	3-12
	30-54	Sandy loam, silt loam, loam.	SC, CL, CL-ML, SM-SC	A-2, A-4	0	100	100	60-100	30-90	20-30	3-10
	54-60	Loamy sand, sandy loam, very fine sandy loam.	SM, SM-SC	A-2, A-4	0	100	100	60-75	15-40	<25	NP-5
38A--------------	0-33	Loamy fine sand	SM	A-2, A-4	0	100	100	60-95	20-50	<20	NP-3
Broseley	33-56	Fine sandy loam, sandy clay loam.	SM, SC, SM-SC	A-4, A-6	0	100	100	65-95	36-50	20-35	2-15
	56-60	Stratified loamy sand to sandy loam.	SM, SM-SC	A-4, A-2	0	100	100	60-80	20-50	<25	NP-7

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
39 Cairo	0-30	Silty clay	CH	A-7	0	100	100	95-100	90-100	51-80	31-55
	30-60	Sandy loam, loamy fine sand, fine sand.	SM, SC, SM-SC	A-2, A-4	0	100	65-100	50-80	15-45	15-30	NP-10
40 Clana	0-7	Loamy fine sand	SM, SP-SM	A-2-4	0	100	100	85-95	10-30	---	NP
	7-33	Loamy fine sand, loamy sand, fine sand.	SM, SP-SM	A-2-4	0	100	100	75-85	10-30	---	NP
	33-60	Loamy fine sand, loamy sand, sand.	SM, SP-SM	A-2-4	0	100	100	50-75	10-20	---	NP
41A Caruthersville	0-28	Very fine sandy loam.	CL-ML, ML, CL	A-4	0	100	100	100	85-100	15-30	NP-9
	28-60	Stratified silt loam to fine sand.	SM-SC, CL-ML, SM, ML	A-4	0	100	100	90-100	36-100	<30	NP-9
42 Commerce	0-12	Silty clay loam	CL	A-6, A-7-6	0	100	100	100	90-100	32-50	11-25
	12-23	Silty clay loam, silt loam, loam.	CL	A-6, A-7-6	0	100	100	100	85-100	32-45	11-23
	23-60	Stratified very fine sandy loam to silty clay.	CL-ML, CL, ML	A-4, A-6, A-7-6	0	100	100	100	75-100	23-45	3-23
43 Cooter	0-18	Silty clay loam, silty clay.	CH, CL	A-7	0	100	100	95-100	85-95	45-65	30-45
	18-60	Stratified loamy fine sand to sand.	SM	A-2	0	100	100	50-75	15-30	<15	NP-3
44* Crevasse	0-3	Sandy loam	SM	A-2	0	100	95-100	60-100	15-30	---	NP
	3-60	Sand, loamy sand, fine sand.	SP-SM, SM	A-2, A-3	0	100	95-100	50-100	5-20	---	NP
45 Diehlstadt	0-21	Sandy clay loam	SC, SM-SC	A-4, A-6	0	100	100	65-95	35-50	21-30	4-11
	21-60	Sand, coarse sand, fine sand.	SM, SP-SM, SP	A-2-4, A-3	0	100	100	50-75	2-15	---	NP
46 Dubbs	0-9	Silt loam	ML, CL-ML, CL	A-4	0	100	100	100	60-90	20-35	3-10
	9-24	Silty clay loam, clay loam, sandy clay loam.	CL	A-6, A-7	0	100	100	100	85-100	35-50	15-25
	24-40	Loam, silt loam, very fine sandy loam.	ML, CL-ML, CL	A-4, A-6	0	100	100	85-95	55-90	20-35	3-14
	40-60	Stratified loamy fine sand to sand.	SM	A-2-4	0	100	100	50-70	15-35	<21	NP-4
47 Dundee	0-14	Silt loam	CL, CL-ML, ML	A-4, A-6	0	100	100	90-100	75-98	20-35	3-11
	14-42	Loam, silty clay loam, clay loam.	CL	A-6, A-7	0	100	100	90-100	70-95	28-44	12-22
	42-60	Loam, very fine sandy loam, silt loam.	CL, CL-ML, ML	A-4	0	100	100	85-100	60-90	<30	NP-8
48 Farrenburg	0-32	Fine sandy loam	SM, ML	A-4	0	100	100	70-95	40-65	<30	NP-5
	32-52	Clay loam, sandy clay loam, loam.	CL	A-6, A-7	0	100	100	80-100	52-85	35-45	20-30
	52-60	Stratified sandy loam to sand.	SM	A-2-4	0	100	100	50-70	15-35	<21	NP-4

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
49--------------- Jackport	0-5	Silty clay loam	CL, CH	A-6, A-7	0	100	100	95-100	85-100	30-55	12-30
	5-58	Clay-------------	CH	A-7	0	100	100	95-100	90-100	65-85	35-55
	58-63	Silty clay, silty clay loam, silt loam.	CH, CL	A-7	0	100	100	95-100	90-100	45-75	20-45
50--------------- Lilbourn	0-25	Fine sandy loam	ML, SM	A-4	0	100	100	85-100	40-65	<20	NP-4
	25-34	Fine sandy loam, sandy loam, loam.	ML, SM	A-4	0	100	100	75-100	40-65	<20	NP-4
	34-48	Loam, silt loam, sandy clay loam.	CL	A-6, A-7	0	100	100	95-100	70-95	38-48	15-25
	48-60	Stratified very fine sand to sand.	SM, SM-SC	A-4, A-2	0	100	100	85-100	15-50	<25	NP-7
51A-------------- Malden	0-9	Loamy fine sand	SM	A-2-4	0	100	100	75-90	20-30	---	NP
	9-54	Fine sand, sand, loamy fine sand.	SM, SP-SM	A-2-4	0	100	100	55-90	10-30	---	NP
	54-66	Fine sand, sand	SM, SP-SM	A-2-4	0	100	100	55-90	10-25	---	NP
52B, 52C, 52D3, 52E3------------ Memphis	0-7	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	7-40	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	40-60	Silt loam--------	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15
53--------------- Mhoon	0-4	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	100	95-100	22-30	3-10
	4-60	Silty clay loam, silt loam, clay loam.	CL, CH	A-6, A-7-6	0	100	100	100	95-100	30-55	11-28
54--------------- Reelfoot	0-16	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	95-100	70-100	20-30	3-10
	16-32	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4	0	100	100	90-100	80-100	25-38	7-18
	32-60	Loam, silt loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	100	95-100	80-95	60-95	20-30	5-11
55--------------- Roellen	0-12	Silty clay-------	CL, CH	A-7	0	100	100	95-100	90-100	45-65	20-40
	12-54	Clay, silty clay	CH	A-7	0	100	100	95-100	90-100	55-80	30-50
	54-60	Clay, silty clay, silty clay loam.	CH, CL, CL-ML	A-7, A-6, A-4	0	100	95-100	80-100	60-95	20-80	6-50
56E*------------- Saffell	0-3	Gravelly loamy sand.	SM	A-1, A-2 A-4	0	70-80	50-75	40-65	20-40	<20	NP-3
	3-54	Gravelly loam, very gravelly fine sandy loam, very gravelly loam.	GC, SC, SM-SC, GM-GC	A-2, A-1	0-15	35-85	25-65	20-55	15-35	20-40	4-18
	54-60	Gravelly sandy loam, very gravelly sandy loam, gravelly loamy sand.	GM, GC, SM, SC	A-1, A-2, A-3	0-5	25-80	10-70	5-60	5-35	<35	NP-15
57B, 57C--------- Scotco	0-9	Sand-------------	SM, SP-SM	A-2	0	100	100	50-75	10-30	---	NP
	9-60	Sand, coarse sand	SP-SM, SM	A-2, A-3	0	100	100	50-70	5-15	---	NP

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
58 Sharkey	0-7	Silty clay	CH, CL	A-7-6, A-7-5	0	100	100	100	95-100	46-85	22-50
	7-54	Clay	CH	A-7-6, A-7-5	0	100	100	100	95-100	56-85	30-50
	54-72	Clay, silty clay loam, silt loam, silty clay.	CL, CH	A-6, A-7-6, A-7-5	0	100	100	100	95-100	32-85	11-50
59 Sharkey	0-10	Silty clay loam	CL	A-6, A-7-6	0	100	100	100	95-100	32-50	11-25
	10-52	Clay	CH	A-7-6, A-7-5	0	100	100	100	95-100	56-85	30-50
	52-60	Clay, silty clay loam, silt loam.	CL, CH	A-6, A-7-6, A-7-5	0	100	100	100	95-100	32-85	11-50
60*: Sharkey	0-7	Silty clay	CH, CL	A-7-6, A-7-5	0	100	100	100	95-100	46-85	22-50
	7-54	Clay	CH	A-7-6, A-7-5	0	100	100	100	95-100	56-85	30-50
	54-72	Clay, silty clay loam, silt loam.	CL, CH	A-6, A-7-6, A-7-5	0	100	100	100	95-100	32-85	11-50
Steele	0-8	Fine sand	SM, SP-SM	A-2	0	100	100	75-95	10-20	---	NP
	8-22	Loamy sand	SM	A-2	0	100	100	50-75	15-30	---	NP
	22-26	Loam, sandy loam	ML, CL	A-4, A-6	0	100	100	85-95	65-75	30-40	5-15
	26-60	Silty clay loam, silty clay, clay.	CH, CL	A-7	0	100	100	95-100	85-95	45-80	30-50
61 Sikeston	0-6	Loam	SM-SC, CL-ML, CL, SC	A-4, A-6	0	100	100	65-95	35-75	15-30	5-15
	6-29	Loam, sandy clay loam, clay loam.	CL	A-6, A-7	0	100	100	80-100	50-85	35-45	20-30
	29-45	Loam, sandy clay loam, sandy loam.	CL, SC	A-6	0	100	100	75-100	40-80	30-40	15-25
	45-60	Stratified sandy clay loam to sand.	CL, SM, SC, SM-SC	A-4, A-6, A-2-4, A-2-6	0	100	100	50-90	15-55	<30	NP-15
62 Steele	0-8	Fine sand	SM, SP-SM	A-2-4	0	100	100	75-95	10-20	---	NP
	8-26	Loamy sand	SM	A-2	0	100	100	50-75	15-30	---	NP
	26-60	Silty clay loam, silty clay, clay.	CH, CL	A-7	0	100	100	95-100	85-95	45-80	30-50
63 Tiptonville	0-6	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	85-100	<25	NP-7
	6-38	Silt loam, silty clay loam, loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-100	20-38	7-16
	38-60	Silt loam, loam, very fine sandy loam.	SM, ML, CL-ML, CL	A-2, A-4, A-6	0	100	100	85-100	30-100	15-35	3-15
64 Towosahgy	0-18	Fine sandy loam	CL, CL-ML	A-6, A-4	0	100	100	85-90	50-80	25-40	7-16
	18-22	Loamy fine sand, loamy sand, sandy loam.	SM, ML, SM-SC, SC	A-4, A-2	0	100	100	80-95	15-55	15-35	NP-10
	22-50	Loamy sand, loamy fine sand, sand.	SM, SP-SM	A-2, A-3	0	100	100	50-95	5-30	---	NP
	50-60	Fine sandy loam, sandy loam, loamy fine sand.	SM, SC, SP-SM, SM-SC	A-4, A-2, A-3	0	100	100	80-100	5-50	15-28	NP-10

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
65---------------- Tunica	0-5	Silty clay loam	CL	A-6, A-7	0	100	98-100	95-100	90-100	30-50	15-30
	5-30	Clay, silty clay	CH	A-7	0	100	98-100	95-100	90-100	50-92	25-62
	30-60	Fine sandy loam, silty clay loam, silt loam.	ML, CL-ML, CL	A-4, A-6	0	100	95-100	65-100	51-100	<40	NP-20
66---------------- Wardell	0-7	Loam--------------	SC, CL	A-6	0	100	100	75-100	45-85	25-35	11-20
	7-26	Clay loam, sandy clay loam, loam.	CL	A-6, A-7	0	100	100	80-100	50-85	35-45	20-30
	26-60	Stratified loamy sand to sandy loam.	SM	A-2	0	100	100	50-75	15-30	<15	NP-3
67*. Orthents											
68*. Pits											
70---------------- Falaya	0-6	Silt loam---------	ML, CL-ML, CL	A-4	0	100	100	100	95-100	<30	NP-10
	6-60	Silt loam, silty clay loam.	ML, CL	A-4, A-6, A-7	0	100	100	100	95-100	25-43	7-16

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cm^3	In/hr	In/in	pH	Mmhos/cm					Pct
11C, 11D, 11E: Peridge	0-7	18-27	1.25-1.40	0.6-2.0	0.16-0.24	4.5-6.0	<2	Low	0.37	5	5	.5-2
	7-43	18-35	1.35-1.50	0.6-2.0	0.18-0.22	4.5-6.0	<2	Low	0.32			
	43-56	27-35	1.40-1.60	0.6-2.0	0.13-0.22	4.5-6.0	<2	Low	0.28			
	56-60	40-75	1.40-1.80	0.6-2.0	0.09-0.18	4.5-6.0	<2	Moderate	0.24			
12A: Elsah	0-20	20-27	1.20-1.40	0.6-2.0	0.17-0.24	5.6-7.3	<2	Low	0.37	3	5	1-2
	20-60	5-20	1.40-1.60	2.0-6.0	0.10-0.15	5.6-7.3	<2	Low	0.17			
13: Haymond	0-6	10-18	1.30-1.45	0.6-2.0	0.22-0.24	5.6-7.3	<2	Low	0.37	5	5	1-3
	6-46	10-18	1.30-1.45	0.6-2.0	0.20-0.22	5.6-7.3	<2	Low	0.37			
	46-60	10-18	1.30-1.45	0.6-2.0	0.20-0.22	5.6-7.3	<2	Low	0.37			
14E: Holstein	0-5	12-27	1.20-1.45	0.6-2.0	0.20-0.22	5.6-6.5	<2	Low	0.32	5	6	.5-2
	5-12	18-27	1.35-1.50	0.6-2.0	0.17-0.19	5.1-6.5	<2	Low	0.32			
	12-24	27-35	1.40-1.55	0.6-2.0	0.15-0.17	4.5-6.0	<2	Moderate	0.32			
	24-60	20-35	1.45-1.65	0.6-2.0	0.15-0.17	4.5-6.0	<2	Low	0.32			
15B: Iva	0-30	18-27	1.25-1.40	0.6-2.0	0.22-0.24	4.5-7.3	<2	Low	0.43	4	5	1-3
	30-52	22-30	1.35-1.55	0.06-0.2	0.18-0.20	4.5-6.5	<2	Moderate	0.43			
	52-60	10-20	1.35-1.55	0.6-2.0	0.20-0.22	4.5-6.5	<2	Low	0.43			
16B, 16C, 16D, 16E: Menfro	0-14	18-27	1.25-1.40	0.6-2.0	0.22-0.24	5.1-7.3	<2	Low	0.37	5	6	.5-2
	14-59	27-35	1.35-1.50	0.6-2.0	0.18-0.20	5.1-7.3	<2	Moderate	0.37			
	59-76	8-20	1.30-1.45	0.6-2.0	0.20-0.22	5.1-7.3	<2	Low	0.37			
17F*:												
Menfro	0-12	18-27	1.25-1.40	0.6-2.0	0.22-0.24	5.1-7.3	<2	Low	0.37	5	6	.5-2
	12-44	27-35	1.35-1.50	0.6-2.0	0.18-0.20	5.1-7.3	<2	Moderate	0.37			
	44-60	8-20	1.30-1.45	0.6-2.0	0.20-0.22	5.1-7.3	<2	Low	0.37			
Clarksville	0-8	14-20	1.30-1.60	2.0-6.0	0.07-0.12	4.5-6.0	<2	Low	0.28	2	8	1-2
	8-39	28-35	1.40-1.65	2.0-6.0	0.06-0.10	4.5-5.5	<2	Low	0.28			
	39-60	40-75	1.40-1.80	2.0-6.0	0.05-0.08	4.5-5.5	<2	Low	0.28			
18D*:												
Menfro	0-14	18-27	1.25-1.40	0.6-2.0	0.22-0.24	5.1-7.3	<2	Low	0.37	5	6	.5-2
	14-38	27-35	1.35-1.50	0.6-2.0	0.18-0.20	5.1-7.3	<2	Moderate	0.37			
	38-60	8-20	1.30-1.45	0.6-2.0	0.20-0.22	5.1-7.3	<2	Low	0.37			
Bucklick	0-6	15-25	1.35-1.45	0.6-6.0	0.15-0.24	4.5-7.3	<2	Low	0.32	4	6	2-4
	6-33	38-42	1.25-1.35	0.6-2.0	0.10-0.18	4.5-7.3	<2	Moderate	0.32			
	33-51	36-42	1.25-1.55	0.6-2.0	0.08-0.18	5.1-7.3	<2	Moderate	0.32			
	51	---	---	---	---	---	---	---	---			
18E*:												
Menfro	0-6	18-27	1.25-1.40	0.6-2.0	0.22-0.24	5.1-7.3	<2	Low	0.37	5	6	.5-2
	6-40	27-35	1.35-1.50	0.6-2.0	0.18-0.20	5.1-7.3	<2	Moderate	0.37			
	40-60	8-20	1.30-1.45	0.6-2.0	0.20-0.22	5.1-7.3	<2	Low	0.37			
Bucklick	0-6	15-25	1.35-1.45	0.6-6.0	0.15-0.24	4.5-7.3	<2	Low	0.32	4	6	2-4
	6-39	38-42	1.25-1.35	0.6-2.0	0.10-0.18	4.5-7.3	<2	Moderate	0.32			
	39-60	36-42	1.25-1.55	0.6-2.0	0.08-0.18	5.1-7.3	<2	Moderate	0.32			
19D*:												
Menfro	0-22	18-27	1.25-1.40	0.6-2.0	0.22-0.24	5.1-7.3	<2	Low	0.37	5	6	.5-2
	22-38	27-35	1.35-1.50	0.6-2.0	0.18-0.20	5.1-7.3	<2	Moderate	0.37			
	38-60	8-20	1.30-1.45	0.6-2.0	0.20-0.22	5.1-7.3	<2	Low	0.37			
Holstein	0-8	12-27	1.20-1.45	0.6-2.0	0.20-0.22	5.6-6.5	<2	Low	0.32	5	6	.5-2
	8-45	27-35	1.40-1.55	0.6-2.0	0.15-0.17	4.5-6.0	<2	Moderate	0.32			
	45-65	20-35	1.45-1.65	0.6-2.0	0.15-0.17	4.5-6.0	<2	Low	0.32			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors		Wind erodi- bility group	Organic matter
									K	T		
	In	Pct	G/cm^3	In/hr	In/in	pH	Mmhos/cm					Pct
19E*:												
Menfro-----------	0-5	18-27	1.25-1.40	0.6-2.0	0.22-0.24	5.1-7.3	<2	Low-------	0.37	5	6	.5-2
	5-40	27-35	1.35-1.50	0.6-2.0	0.18-0.20	5.1-7.3	<2	Moderate	0.37			
	40-60	8-20	1.30-1.45	0.6-2.0	0.20-0.22	5.1-7.3	<2	Low-------	0.37			
Holstein---------	0-5	12-27	1.20-1.45	0.6-2.0	0.20-0.22	5.6-6.5	<2	Low-------	0.32	5	6	.5-2
	5-12	18-27	1.35-1.50	0.6-2.0	0.17-0.19	5.1-6.5	<2	Low-------	0.32			
	12-55	27-35	1.40-1.55	0.6-2.0	0.15-0.17	4.5-6.0	<2	Moderate	0.32			
	55-60	20-35	1.45-1.65	0.6-2.0	0.15-0.17	4.5-6.0	<2	Low-------	0.32			
20E---------------	0-19	15-22	1.20-1.45	2.0-6.0	0.04-0.12	4.5-6.5	<2	Low-------	0.28	2	8	.5-1
Poynor	19-24	22-32	1.40-1.55	0.6-2.0	0.02-0.09	3.6-5.5	<2	Low-------	0.28			
	24-64	42-50	1.50-1.65	0.6-2.0	0.08-0.12	3.6-5.5	<2	Moderate	0.28			
21D*:												
Menfro-----------	0-14	18-27	1.25-1.40	0.6-2.0	0.22-0.24	5.1-7.3	<2	Low-------	0.37	5	6	.5-2
	14-34	27-35	1.35-1.50	0.6-2.0	0.18-0.20	5.1-7.3	<2	Moderate	0.37			
	34-60	8-20	1.30-1.45	0.6-2.0	0.20-0.22	5.1-7.3	<2	Low-------	0.37			
Bucklick---------	0-6	15-25	1.35-1.45	0.6-6.0	0.15-0.24	4.5-7.3	<2	Low-------	0.32	4	6	2-4
	6-33	38-42	1.25-1.35	0.6-2.0	0.10-0.18	4.5-7.3	<2	Moderate	0.32			
	33-51	36-42	1.25-1.55	0.6-2.0	0.08-0.18	5.1-7.3	<2	Moderate	0.32			
	51	---	---	---	---	---	---	----------	----			
22---------------	0-9	10-17	1.30-1.45	0.6-2.0	0.22-0.24	5.6-7.3	<2	Low-------	0.37	5	5	1-3
Wilbur	9-60	10-17	1.30-1.45	0.6-2.0	0.20-0.22	5.6-7.3	<2	Low-------	0.37			
23---------------	0-12	10-17	1.30-1.50	0.6-2.0	0.22-0.24	5.6-7.3	<2	Low-------	0.37	5	5	1-3
Wakeland	12-60	10-17	1.30-1.50	0.6-2.0	0.20-0.22	5.6-7.3	<2	Low-------	0.37			
31---------------	0-8	10-25	1.50-1.55	0.6-2.0	0.20-0.23	5.6-7.8	<2	Low-------	0.43	5	5	---
Adler	8-60	5-18	1.50-1.55	0.6-2.0	0.20-0.23	5.6-7.8	<2	Low-------	0.43			
32---------------	0-39	---	0.15-0.5	>2.0	0.20-0.50	4.5-7.8	<4	Low-------	----	---	3	---
Allemands	39-60	20-95	1.35-1.75	<0.6	0.12-0.18	6.6-8.4	<4	High------	0.37			
33---------------	0-6	30-60	1.40-1.50	0.2-0.6	0.18-0.22	4.5-6.0	<2	High------	0.43	5	4	1-3
Alligator	6-46	60-85	1.45-1.55	<0.06	0.14-0.18	4.5-5.5	<2	Very high	0.24			
	46-60	35-85	1.45-1.55	<0.06	0.14-0.18	6.1-7.3	<2	Very high	0.24			
34---------------	0-8	5-15	1.30-1.50	2.0-6.0	0.10-0.15	4.5-6.0	<2	Low-------	0.20	5	3	.5-2
Beulah	8-40	7-16	1.25-1.50	2.0-6.0	0.10-0.20	4.5-6.0	<2	Low-------	0.20			
	40-60	4-12	1.35-1.60	>6.0	0.02-0.15	5.1-7.3	<2	Low-------	0.17			
35---------------	0-18	3-10	1.20-1.30	2.0-6.0	0.07-0.11	5.1-7.3	<2	Low-------	0.15	2	2	2-3
Diehlstadt	18-60	1-7	1.20-1.40	6.0-20	0.05-0.07	5.6-7.3	<2	Low-------	0.15			
36---------------	0-21	5-15	1.30-1.50	2.0-6.0	0.10-0.15	5.1-6.5	<2	Low-------	0.24	4	3	.5-2
Bosket	21-45	18-30	1.25-1.50	0.6-2.0	0.10-0.20	5.1-6.5	<2	Low-------	0.32			
	45-60	4-15	1.30-1.60	>2.0	0.02-0.15	5.1-6.5	<2	Low-------	0.24			
37A--------------	0-17	35-60	1.40-1.50	0.06-0.2	0.15-0.20	5.6-7.3	<2	High------	0.37	3	7	1-3
Bowdre	17-30	10-25	1.50-1.55	0.2-0.6	0.19-0.22	6.1-8.4	<2	Low-------	0.32			
	30-54	7-25	1.50-1.55	0.6-2.0	0.15-0.22	6.1-8.4	<2	Low-------	0.32			
	54-60	5-12	1.40-1.50	2.0-6.0	0.05-0.15	6.1-8.4	<2	Low-------	----			
38A--------------	0-33	8-12	1.40-1.50	6.0-20	0.09-0.12	5.1-6.5	<2	Low-------	0.17	5	2	.5-1
Broseley	33-56	12-20	1.45-1.55	2.0-6.0	0.12-0.16	5.1-6.5	<2	Low-------	0.24			
	56-60	8-15	1.45-1.65	2.0-20	0.08-0.14	5.1-6.5	<2	Low-------	0.17			
39---------------	0-30	40-60	1.30-1.50	<0.06	0.09-0.13	6.1-7.8	<2	High------	0.28	4	4	5-7
Cairo	30-60	5-15	1.50-1.70	6.0-20	0.08-0.18	6.1-7.8	<2	Low-------	0.17			
40---------------	0-7	6-12	1.30-1.50	6.0-20	0.07-0.12	5.6-7.3	<2	Low-------	0.17	5	2	.5-2
Clana	7-33	4-10	1.40-1.60	6.0-20	0.07-0.12	5.6-7.3	<2	Low-------	0.17			
	33-60	4-10	1.40-1.60	6.0-20	0.05-0.11	5.6-7.3	<2	Low-------	0.17			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	G/cm^3	In/hr	In/in	pH	Mmhos/cm					Pct
41A---------------	0-28	10-18	1.30-1.50	0.6-2.0	0.16-0.24	6.6-7.8	<2	Low--------	0.37	5	3	1-2
Caruthersville	28-60	10-18	1.30-1.50	0.6-6.0	0.12-0.22	6.6-8.4	<2	Low--------	0.37			
42-----------------	0-12	27-39	1.45-1.70	0.2-0.6	0.20-0.22	5.6-7.8	<2	Moderate	0.32	5	7	.5-2
Commerce	12-23	14-39	1.35-1.70	0.2-0.6	0.20-0.22	6.1-8.4	<2	Moderate	0.32			
	23-60	14-60	1.35-1.75	0.2-2.0	0.20-0.23	6.6-8.4	<2	Low--------	0.37			
43-----------------	0-18	35-48	1.40-1.55	0.06-0.2	0.12-0.21	6.1-7.8	<2	High-------	0.37	5	4	2-4
Cooter	18-60	5-12	1.50-1.60	>6.0	0.06-0.11	6.1-7.8	<2	Low--------	0.17			
44*---------------	0-3	5-12	1.45-1.55	6.0-20	0.08-0.08	5.6-8.4	<2	Low--------	0.15	5	3	---
Crevasse	3-60	2-8	1.40-1.50	6.0-20	0.02-0.06	5.6-8.4	<2	Low--------	0.15			
45-----------------	0-21	10-27	1.20-1.40	0.6-6.0	0.09-0.13	5.1-7.3	<2	Low--------	0.20	2	3	2-3
Diehlstadt	21-60	1-7	1.20-1.40	6.0-20	0.05-0.07	5.6-7.3	<2	Low--------	0.15			
46-----------------	0-9	5-18	1.40-1.50	0.6-2.0	0.20-0.22	4.5-6.0	<2	Low--------	0.37	5	5	.5-2
Dubbs	9-24	20-35	1.45-1.55	0.6-2.0	0.18-0.22	4.5-6.0	<2	Moderate	0.37			
	24-40	10-25	1.40-1.50	2.0-6.0	0.20-0.22	4.5-6.0	<2	Low--------	0.37			
	40-60	4-10	1.40-1.60	6.0-20	0.05-0.07	4.5-5.5	<2	Low--------	0.15			
47-----------------	0-14	10-30	1.3-1.8	0.6-2.0	0.15-0.20	4.5-6.0	<2	Low--------	0.37	4	5	.5-1
Dundee	14-42	18-34	1.3-1.8	0.2-0.6	0.15-0.20	4.5-6.0	<2	Moderate	0.32			
	42-60	18-25	1.3-1.8	0.6-2.0	0.15-0.20	4.5-7.3	<2	Low--------	0.32			
48-----------------	0-32	15-20	1.35-1.50	0.6-2.0	0.16-0.22	4.5-7.3	<2	Low--------	0.32	5	3	.5-1
Farrenburg	32-52	20-35	1.40-1.55	0.6-2.0	0.15-0.19	4.5-7.3	<2	Moderate	0.32			
	52-60	5-15	1.45-1.60	>6.0	0.05-0.10	4.5-7.3	<2	Low--------	0.32			
49-----------------	0-5	30-40	1.25-1.40	0.2-0.6	0.18-0.22	4.5-7.3	<2	Moderate	0.43	5	7	1-3
Jackport	5-58	60-80	1.15-1.30	<0.06	0.12-0.18	4.5-5.5	<2	High-------	0.32			
	58-63	25-50	1.20-1.45	<0.2	0.14-0.24	6.1-7.8	<2	High-------	0.43			
50-----------------	0-25	10-15	1.35-1.50	2.0-6.0	0.13-0.18	5.6-7.3	<2	Low--------	0.24	5	3	.5-2
Lilbourn	25-34	12-15	1.40-1.50	2.0-6.0	0.10-0.18	5.6-7.3	<2	Low--------	0.24			
	34-48	15-27	1.45-1.55	0.6-2.0	0.17-0.22	4.5-7.3	<2	Moderate	0.24			
	48-60	5-18	1.50-1.60	2.0-20	0.07-0.16	5.1-7.3	<2	Low--------	0.24			
51A---------------	0-9	5-12	1.45-1.60	6.0-20	0.06-0.10	5.1-7.3	<2	Very low	0.17	5	2	1-3
Malden	9-54	5-12	1.50-1.65	6.0-20	0.04-0.10	5.1-6.5	<2	Very low	0.17			
	54-66	4-8	1.55-1.70	6.0-20	0.02-0.06	5.1-6.5	<2	Very low	0.17			
52B, 52C, 52D3, 52E3-------------	0-7	8-22	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	<2	Low--------	0.37	5	5	1-2
Memphis	7-40	20-35	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	<2	Low--------	0.37			
	40-60	12-25	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	<2	Low--------	0.37			
53-----------------	0-4	14-27	1.35-1.65	0.6-2.0	0.21-0.23	6.1-7.8	<2	Low--------	0.43	5	5	.5-2
Mhoon	4-60	14-39	1.35-1.75	0.06-0.2	0.18-0.22	6.1-8.4	<2	Moderate	0.37			
54-----------------	0-16	12-30	1.30-1.50	0.6-2.0	0.20-0.22	5.6-7.3	<2	Low--------	0.37	5	5	2-6
Reelfoot	16-32	18-35	1.30-1.50	0.6-2.0	0.20-0.22	5.1-6.5	<2	Low--------	0.32			
	32-60	15-30	1.20-1.50	0.6-2.0	0.15-0.20	5.1-7.3	<2	Low--------	0.32			
55-----------------	0-12	35-50	1.40-1.55	0.06-0.2	0.15-0.19	5.6-7.8	<2	High-------	0.32	5	4	1-6
Roellen	12-54	40-60	1.40-1.55	0.06-0.2	0.14-0.17	5.6-7.8	<2	High-------	0.37			
	54-60	25-60	1.40-1.60	0.06-2.0	0.14-0.20	5.6-7.8	<2	High-------	0.37			
56E*--------------	0-3	5-20	1.30-1.60	2.0-6.0	0.07-0.15	4.5-5.5	<2	Low--------	0.24	4	8	1-2
Saffell	3-54	12-35	1.25-1.60	0.6-2.0	0.06-0.12	4.5-5.5	<2	Low--------	0.28			
	54-60	10-25	1.30-1.65	0.6-6.0	0.04-0.11	4.5-5.5	<2	Low--------	0.17			
57B, 57C----------	0-9	4-8	1.20-1.40	6.0-20	0.07-0.12	5.6-7.3	<2	Low--------	0.17	5	1	.2-1
Scotco	9-60	2-6	1.20-1.40	6.0-20	0.02-0.08	5.6-7.3	<2	Low--------	0.17			
58-----------------	0-7	40-60	1.20-1.50	<0.06	0.18-0.20	5.1-8.4	<2	Very high	0.24	5	4	.5-2
Sharkey	7-54	60-90	1.20-1.50	<0.06	0.18-0.20	5.6-8.4	<2	Very high	0.28			
	54-72	25-90	1.20-1.75	0.06-0.2	0.18-0.22	6.6-8.4	<2	Very high	0.28			

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay <2mm	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	G/cm^3	In/hr	In/in	pH	Mmhos/cm					Pct
59--------------- Sharkey	0-10	27-35	1.40-1.75	0.2-0.6	0.20-0.22	5.1-8.4	<2	Moderate	0.37	5	4	.5-2
	10-52	60-90	1.20-1.50	<0.06	0.18-0.20	5.6-8.4	<2	Very high	0.28			
	52-60	25-90	1.20-1.75	0.06-0.2	0.18-0.22	6.6-8.4	<2	Very high	0.28			
60*:												
Sharkey---------	0-7	40-60	1.20-1.50	<0.06	0.18-0.20	5.1-8.4	<2	Very high	0.24	5	4	.5-2
	7-54	60-90	1.20-1.50	<0.06	0.18-0.20	5.6-8.4	<2	Very high	0.28			
	54-72	25-90	1.20-1.75	0.06-0.2	0.18-0.22	6.6-8.4	<2	Very high	0.28			
Steele----------	0-8	5-12	1.40-1.50	6.0-20	0.10-0.12	5.6-7.3	<2	Low-------	0.17	5	2	.5-1
	8-22	5-12	1.40-1.50	6.0-20	0.10-0.12	5.6-7.3	<2	Low-------	0.17			
	22-26	15-27	1.45-1.50	0.6-2.0	0.13-0.16	5.6-7.3	<2	Low-------	0.28			
	26-60	35-50	1.50-1.60	0.06-0.2	0.15-0.20	5.6-7.3	<2	High------	0.28			
61--------------- Sikeston	0-6	12-27	1.25-1.45	0.6-2.0	0.14-0.21	6.1-7.8	<2	Low-------	0.24	5	5	1-3
	6-29	20-30	1.45-1.55	0.2-0.6	0.15-0.18	6.1-7.8	<2	Moderate	0.24			
	29-45	18-27	1.45-1.60	0.2-0.6	0.11-0.16	6.1-7.8	<2	Moderate	0.24			
	45-60	5-25	1.50-1.65	0.6-20	0.05-0.15	6.1-7.8	<2	Low-------	0.24			
62--------------- Steele	0-8	6-10	1.20-1.40	6.0-20	0.07-0.09	5.6-7.3	<2	Low-------	0.17	5	1	.5-1
	8-26	5-12	1.40-1.50	6.0-20	0.10-0.12	5.6-7.3	<2	Low-------	0.17			
	26-60	35-50	1.50-1.60	0.06-0.2	0.15-0.20	5.6-7.3	<2	High------	0.28			
63--------------- Tiptonville	0-6	10-25	1.20-1.50	0.6-2.0	0.20-0.23	5.6-7.3	<2	Low-------	0.32	5	5	2-6
	6-38	18-35	1.30-1.50	0.6-2.0	0.19-0.22	5.1-6.5	<2	Low-------	0.28			
	38-60	3-25	1.20-1.50	0.6-2.0	0.15-0.20	5.1-7.3	<2	Low-------	0.28			
64--------------- Towosahgy	0-18	18-30	1.30-1.50	0.6-2.0	0.15-0.24	5.6-7.3	<2	Low-------	0.28	4	6	2-3
	18-22	5-20	1.30-1.50	6.0-20	0.12-0.19	5.6-7.3	<2	Low-------	0.28			
	22-50	2-10	1.30-1.50	6.0-20	0.05-0.11	5.6-7.3	<2	Low-------	0.17			
	50-60	5-15	1.30-1.50	6.0-20	0.12-0.17	5.6-7.3	<2	Low-------	0.17			
65--------------- Tunica	0-5	20-35	1.40-1.50	0.06-0.2	0.20-0.22	5.6-7.8	<2	Moderate	0.43	3	7	1-3
	5-30	35-75	1.45-1.55	<0.06	0.15-0.20	5.6-7.8	<2	High------	0.32			
	30-60	10-32	1.40-1.50	0.06-2.0	0.10-0.22	5.6-8.4	<2	Low-------	0.32			
66--------------- Wardell	0-7	15-27	1.25-1.45	0.2-0.6	0.18-0.22	5.6-7.3	<2	Low-------	0.37	5	6	.5-2
	7-26	18-35	1.45-1.55	0.06-0.2	0.15-0.19	4.5-6.5	<2	Moderate	0.37			
	26-60	5-15	1.45-1.60	>6.0	0.05-0.08	5.1-6.5	<2	Low-------	0.37			
67*. Orthents												
68*. Pits												
70--------------- Falaya	0-6	6-18	1.25-1.45	0.6-2.0	0.20-0.22	4.5-6.5	<2	Low-------	0.43	5	5	.5-3
	6-60	6-32	1.25-1.50	0.06-2.0	0.14-0.22	4.5-5.5	<2	Low-------	0.43			

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the text explain terms such as "rare," "brief," "apparent," and "perched." The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
11C, 11D, 11E----- Peridge	B	None---------	---	---	>6.0	---	---	>60	---	---	Moderate	Moderate.
12A--------------- Elsah	B	Frequent----	Brief-----	Dec-May	>6.0	---	---	>60	---	Moderate	Low------	Moderate.
13---------------- Haymond	B	Frequent----	Brief-----	Jan-May	>6.0	---	---	>60	---	High-----	Low------	Low.
14E--------------- Holstein	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
15B--------------- Iva	C	None---------	---	---	1.0-3.0	Apparent	Jan-Apr	>60	---	High-----	High-----	Moderate.
16B, 16C, 16D, 16E-------------- Menfro	B	None---------	---	---	>6.0	---	---	>60	---	High-----	Low------	Moderate.
17F*:												
Menfro-----------	B	None---------	---	---	>6.0	---	---	>60	---	High-----	Low------	Moderate.
Clarksville------	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Low------	High.
18D*, 18E*:												
Menfro-----------	B	None---------	---	---	>6.0	---	---	>60	---	High-----	Low------	Moderate.
Bucklick---------	C	None---------	---	---	>6.0	---	---	>50	Hard	Moderate	Moderate	Moderate.
19D*, 19E*:												
Menfro-----------	B	None---------	---	---	>6.0	---	---	>60	---	High-----	Low------	Moderate.
Holstein---------	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Moderate	Moderate.
20E--------------- Poynor	B	None---------	---	---	>6.0	---	---	>60	---	Moderate	Moderate	High.
21D*:												
Menfro-----------	B	None---------	---	---	>6.0	---	---	>60	---	High-----	Low------	Moderate.
Bucklick---------	C	None---------	---	---	>6.0	---	---	>50	Hard	Moderate	Moderate	Moderate.
22---------------- Wilbur	C	Frequent----	Brief-----	Oct-Jun	3.0-6.0	Apparent	Mar-Apr	>60	---	High-----	Moderate	Moderate.
23---------------- Wakeland	B/D	Frequent----	Brief-----	Jan-May	1.0-3.0	Apparent	Jan-Apr	>60	---	High-----	High-----	Low.
31---------------- Adler	C	Rare---------	---	---	2.0-3.0	Apparent	Jan-Apr	>60	---	---	Moderate	Low.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
32---------------- Allemands	D	Frequent----	Brief to long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	>60	---	---	High-----	Moderate.
33---------------- Alligator	D	Rare--------	---	---	0.5-2.0	Apparent	Jan-Apr	>60	---	---	High-----	Moderate.
34---------------- Beulah	B	None--------	---	---	>6.0	---	---	>60	---	---	Low------	Moderate.
35---------------- Diehlstadt	C	Occasional	Brief-----	Dec-Apr	1.0-2.0	Apparent	Dec-Apr	>60	---	---	Moderate	Moderate.
36---------------- Bosket	B	None--------	---	---	>6.0	---	---	>60	---	---	Low------	Moderate.
37A--------------- Bowdre	C	Rare--------	Brief to long.	Jan-Apr	1.5-2.0	Perched	Jan-Apr	>60	---	---	High-----	Low.
38A--------------- Broseley	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Low------	Moderate.
39---------------- Cairo	D	Frequent----	Brief-----	Nov-Jun	0-2.0	Apparent	Nov-Jun	>60	---	Moderate	High-----	Moderate.
40---------------- Clana	A	None--------	---	---	2.0-3.0	Apparent	Jan-May	>60	---	---	Low------	Moderate.
41A--------------- Caruthersville	B	Rare--------	---	---	2.0-3.0	Apparent	Jan-May	>60	---	---	Low------	Low.
42---------------- Commerce	C	Rare--------	---	---	1.5-4.0	Apparent	Dec-Apr	>60	---	---	High-----	Low.
43---------------- Cooter	B	Occasional	Very brief	Feb-May	2.0-3.0	Apparent	Nov-Apr	>60	---	---	High-----	Low.
44*--------------- Crevasse	A	Frequent----	Brief-----	Oct-Mar	3.5-6.0	Apparent	Nov-Mar	>60	---	---	Low------	Moderate.
45---------------- Diehlstadt	C	Occasional	Brief-----	Dec-Apr	1.0-2.0	Apparent	Dec-Apr	>60	---	---	Moderate	Moderate.
46---------------- Dubbs	B	None--------	---	---	>6.0	---	---	>60	---	---	Moderate	Moderate.
47---------------- Dundee	C	None--------	---	---	1.5-3.5	Apparent	Jan-Apr	>60	---	---	High-----	Moderate.
48---------------- Farrenburg	B	Rare--------	---	---	2.0-3.0	Perched	Nov-Apr	>60	---	---	Moderate	Moderate.
49---------------- Jackport	D	None--------	---	---	0-1.0	Perched	Dec-Apr	>60	---	---	High-----	High.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
50 Lilbourn	B	Rare	---	---	0-2.0	Perched	Nov-Apr	>60	---	---	Moderate	High.
51A Malden	A	None	---	---	>6.0	---	---	>60	---	---	Low	Moderate.
52B, 52C, 52D3, 52E3 Memphis	B	None	---	---	>6.0	---	---	>60	---	---	Moderate	Moderate.
53 Mhoon	D	Rare	---	---	0-3.0	Apparent	Dec-Apr	>60	---	---	High	Low.
54 Reelfoot	C	Rare	---	---	1.5-2.5	Apparent	Jan-Apr	>60	---	---	High	Moderate.
55 Roellen	D	Occasional	Brief	Jan-May	0-1.0	Apparent	Jan-May	>60	---	---	High	Low.
56E* Saffell	B	None	---	---	>6.0	---	---	>60	---	---	Low	Moderate.
57B, 57C Scotco	A	None	---	---	>6.0	---	---	>60	---	---	Low	Moderate.
58, 59 Sharkey	D	Rare	---	---	0-2.0	Apparent	Dec-Apr	>60	---	---	High	Low.
60*:												
Sharkey	D	Rare	---	---	0-2.0	Apparent	Dec-Apr	>60	---	---	High	Low.
Steele	C	Rare	---	---	1.5-3.0	Perched	Jan-May	>60	---	---	High	Low.
61 Sikeston	B/D	Frequent	Long	Mar-Jun	0-1.5	Perched	Jan-May	>60	---	---	High	Low.
62 Steele	C	Rare	---	---	1.5-3.0	Perched	Jan-May	>60	---	---	High	Low.
63 Tiptonville	B	None	---	---	2.5-3.5	Apparent	Jan-May	>60	---	---	Moderate	Moderate.
64 Towosahgy	B	None	---	---	>6.0	---	---	>60	---	---	Low	Low.
65 Tunica	D	Rare	---	---	1.5-3.0	Apparent	Jan-Apr	>60	---	---	High	Low.
66 Wardell	C	Rare	---	---	0-1.5	Perched	Nov-Apr	>60	---	---	High	Moderate.
67*. Orthents												

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		Uncoated steel	Concrete
					Ft			In				
68*. Pits												
70---------------- Falaya	D	Occasional	Brief to long.	Dec-Apr	1.0-2.0	Apparent	Dec-Apr	>60	---	---	High-----	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Adler	Coarse-silty, mixed, nonacid, thermic Aquic Udifluvents
*Allemands	Clayey, montmorillonitic, euic, thermic Terric Medisaprists
Alligator	Very-fine, montmorillonitic, acid, thermic Vertic Haplaquepts
Beulah	Coarse-loamy, mixed, thermic Typic Dystrochrepts
Bosket	Fine-loamy, mixed, thermic Mollic Hapludalfs
Bowdre	Clayey over loamy, montmorillonitic, thermic Fluvaquentic Hapludolls
Broseley	Loamy, mixed, thermic Arenic Hapludalfs
Bucklick	Fine, mixed, mesic Typic Hapludalfs
Cairo	Clayey over sandy or sandy-skeletal, montmorillonitic, thermic Vertic Haplaquolls
*Caruthersville	Coarse-silty, mixed (calcareous), thermic Typic Udifluvents
Clana	Mixed, thermic Aquic Udipsamments
Clarksville	Loamy-skeletal, siliceous, mesic Typic Paleudults
Commerce	Fine-silty, mixed, nonacid, thermic Aeric Fluvaquents
Cooter	Clayey over sandy or sandy-skeletal, montmorillonitic, thermic Fluvaquentic Hapludolls
Crevasse	Mixed, thermic Typic Udipsamments
Diehlstadt	Sandy, mixed, thermic Typic Haplaquolls
Dubbs	Fine-silty, mixed, thermic Typic Hapludalfs
Dundee	Fine-silty, mixed, thermic Aeric Ochraqualfs
Elsah	Loamy-skeletal, mixed, nonacid, mesic Typic Udifluvents
Falaya	Coarse-silty, mixed, acid, thermic Aeric Fluvaquents
Farrenburg	Fine-loamy, mixed, thermic Aquic Hapludalfs
Haymond	Coarse-silty, mixed, nonacid, mesic Typic Udifluvents
Holstein	Fine-loamy, mixed, mesic Typic Paleudalfs
Iva	Fine-silty, mixed, mesic Aeric Ochraqualfs
Jackport	Very-fine, montmorillonitic, thermic Vertic Ochraqualfs
Lilbourn	Coarse-loamy, mixed, nonacid, thermic Aeric Fluvaquents
Malden	Mixed, thermic Typic Udipsamments
Memphis	Fine-silty, mixed, thermic Typic Hapludalfs
Menfro	Fine-silty, mixed, mesic Typic Hapludalfs
Mhoon	Fine-silty, mixed, nonacid, thermic Typic Fluvaquents
Orthents	Fine-loamy, mixed, thermic Udorthents
Peridge	Fine-silty, mixed, mesic Typic Paleudalfs
Poynor	Loamy-skeletal over clayey, siliceous, mesic Typic Paleudults
Reelfoot	Fine-silty, mixed, thermic Aquic Argiudolls
Roellen	Fine, montmorillonitic, thermic Vertic Haplaquolls
Saffell	Loamy-skeletal, siliceous, thermic Typic Hapludults
Scotco	Siliceous, thermic Typic Udipsamments
Sharkey	Very-fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Sikeston	Fine-loamy, mixed, thermic Cumulic Haplaquolls
Steele	Sandy over clayey, mixed, nonacid, thermic Aquic Udifluvents
Tiptonville	Fine-silty, mixed, thermic Typic Argiudolls
Towosahgy	Fine-loamy over sandy or sandy-skeletal, mixed, thermic Typic Hapludolls
Tunica	Clayey over loamy, montmorillonitic, nonacid, thermic Vertic Haplaquepts
Wakeland	Coarse-silty, mixed, nonacid, mesic Aeric Fluvaquents
Wardell	Fine-loamy, mixed, thermic Mollic Ochraqualfs
Wilbur	Coarse-silty, mixed, nonacid, mesic Aquic Udifluvents

*The soil is a taxadjunct to the series. See text for description of those characteristics of the soil that are outside the range of the series.

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For additional information dealing with Supplemental Nutrition Assistance Program (SNAP) issues, call either the USDA SNAP Hotline Number at (800) 221-5689, which is also in Spanish, or the State Information/Hotline Numbers (http://directives.sc.egov.usda.gov/33085.wba).

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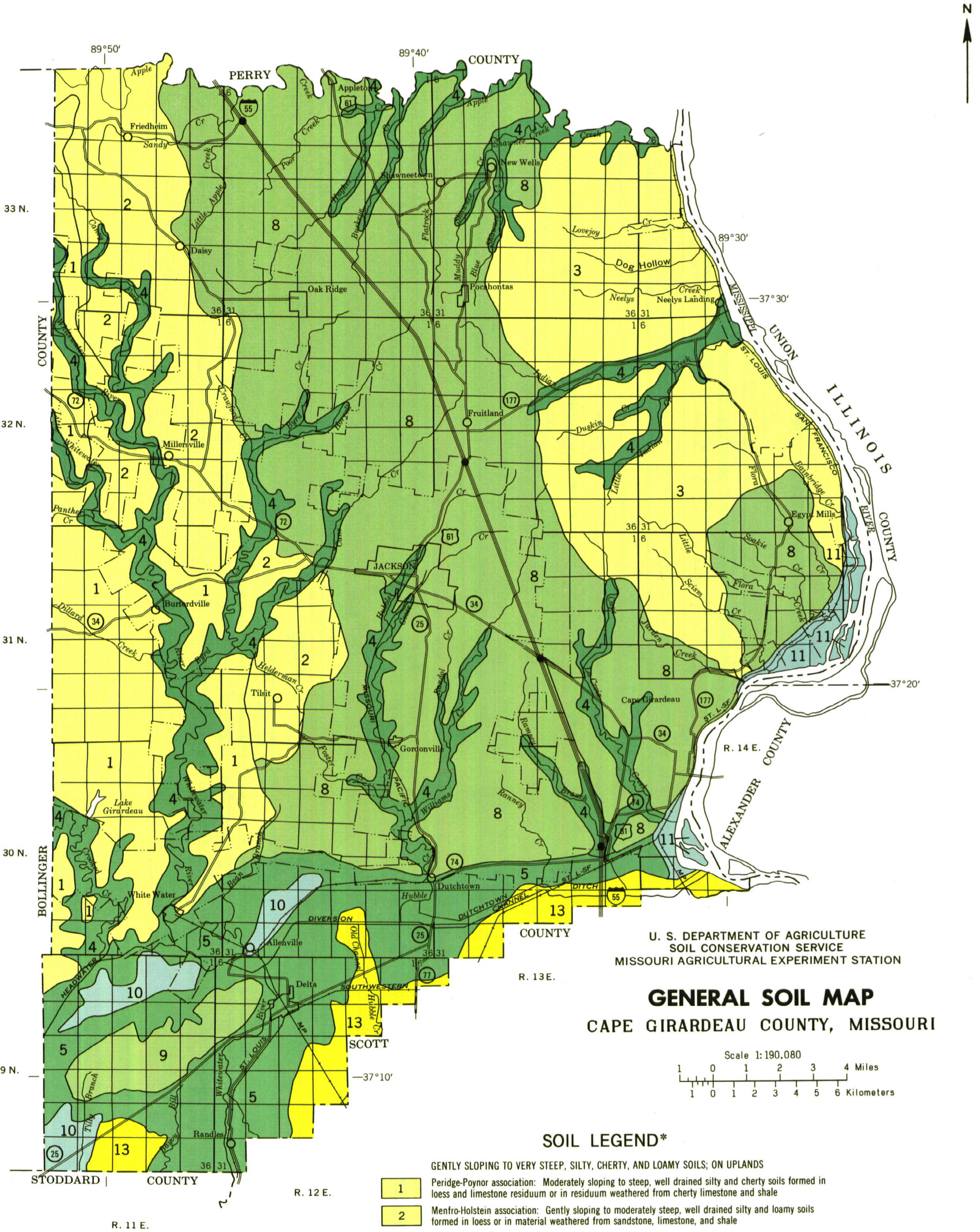
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SCOTT COUNTY
UNION COUNTY
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MISSISSIPPI RIVER
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Shawneetown
New Wells
Daisy
Oak Ridge
Pocahontas
Neelys Landing
Fruitland
Millersville
Egypt Mills
Jackson
Burfordville
Tilsit
Gordonville
Cape Girardeau
Lake Girardeau
White Water
Dutchtown
Allenville
Delta
Randles
Apple Creek
Sandy Cr
Little Apple Creek
Poor Creek
Hughes Cr
Byrd Creek
Flatrock Cr
Muddy Cr
Blue Shawnee
Shawnee Creek
Lovejoy Cr
Dog Hollow
Neelys Creek
Indian Cr
Duskin Cr
Little Indian Creek
Flora Cr
Bainbridge Cr
Soakie Cr
Little Scism Cr
Juden Creek
Crawford Cr
Hubble Creek
Randol Cr
Ramsey Creek
Cane Cr
Williams Cr
Foster Cr
Helderman Cr
Dillard Creek
Panther Cr
Little Whitewater
Whitewater River
Crooked Cr
Bean Cr
Headwater Diversion Channel
Dutchtown Channel Ditch
Old Channel
Hubble Cr
Tilley Branch
Bill Cr
Byrd Cr
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St. Louis San Francisco
St. L.-SF
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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSOURI AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
CAPE GIRARDEAU COUNTY, MISSOURI

Scale 1: 190,080

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 6 Kilometers

SOIL LEGEND*

GENTLY SLOPING TO VERY STEEP, SILTY, CHERTY, AND LOAMY SOILS; ON UPLANDS

1	Peridge-Poynor association: Moderately sloping to steep, well drained silty and cherty soils formed in loess and limestone residuum or in residuum weathered from cherty limestone and shale
2	Menfro-Holstein association: Gently sloping to moderately steep, well drained silty and loamy soils formed in loess or in material weathered from sandstone, limestone, and shale
3	Menfro-Clarksville association: Moderately sloping to very steep, well drained and somewhat excessively drained silty and cherty soils formed in loess and in cherty limestone residuum

NEARLY LEVEL, SILTY, LOAMY, AND SANDY SOILS; ON FLOOD PLAINS

4	Haymond-Wakeland association: Nearly level, well drained and somewhat poorly drained silty soils formed in alluvium
5	Adler-Falaya association: Nearly level, moderately well drained and somewhat poorly drained silty soils formed in alluvium

GENTLY SLOPING TO VERY STEEP, SILTY SOILS; ON UPLANDS

8	Menfro association: Gently sloping to steep, well drained silty soils formed in loess
9	Memphis association: Gently sloping to very steep, well drained silty soils formed in loess

NEARLY LEVEL, SILTY AND LOAMY SOILS; ON LEVEES, TERRACES, AND FLOOD PLAINS

10	Dundee-Dubbs-Jackport association: Nearly level, somewhat poorly drained, well drained, and poorly drained silty soils formed in alluvium
11	Commerce-Caruthersville association: Nearly level, somewhat poorly drained and moderately well drained silty and loamy soils formed in alluvium

NEARLY LEVEL, CLAYEY AND SILTY SOILS; ON LEVEES AND FLOOD PLAINS

13	Sharkey association: Nearly level, poorly drained clayey and silty soils formed in alluvium

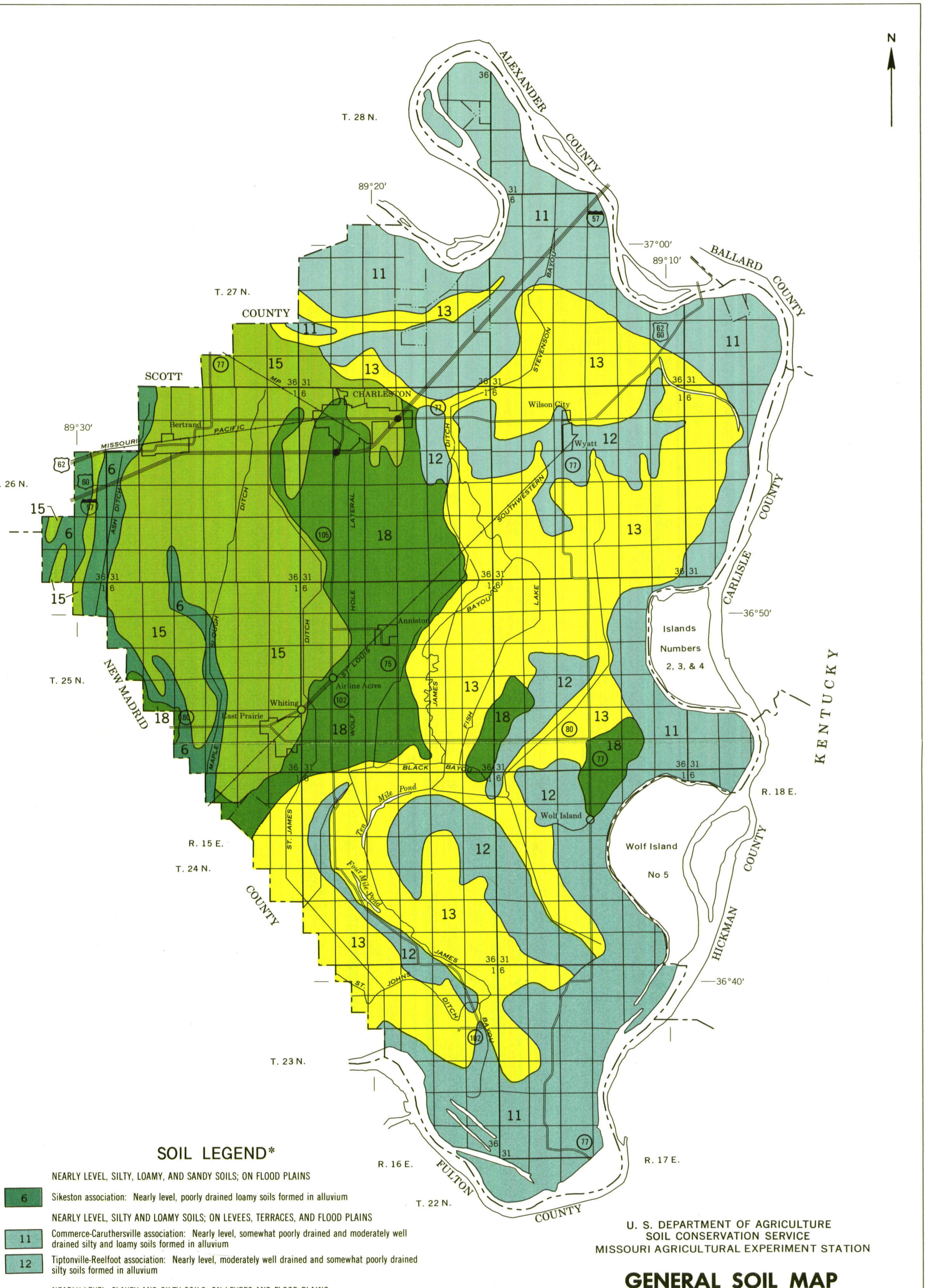
*The terms for texture used in the descriptive heading apply to the surface layer of the major soils.

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

Compiled 1980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HICKMAN COUNTY
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Bertrand
Wilson City
Wyatt
Anniston
Airline Acres
Whiting
East Prairie
Wolf Island
Islands Numbers 2, 3, & 4
Wolf Island No 5
MISSOURI PACIFIC
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ASH DITCH
DITCH
SLOUGH
MAPLE
LATERAL
HOLE
WOLF
DITCH
STEVENSON BAYOU
LAKE
BAYOU
JAMES
FISH
BLACK BAYOU
Ten Mile Pond
Four Mile Pond
ST. JAMES
ST. JOHNS DITCH
JAMES BAYOU
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SOIL LEGEND*

NEARLY LEVEL, SILTY, LOAMY, AND SANDY SOILS; ON FLOOD PLAINS

6	Sikeston association: Nearly level, poorly drained loamy soils formed in alluvium

NEARLY LEVEL, SILTY AND LOAMY SOILS; ON LEVEES, TERRACES, AND FLOOD PLAINS

11	Commerce-Caruthersville association: Nearly level, somewhat poorly drained and moderately well drained silty and loamy soils formed in alluvium
12	Tiptonville-Reelfoot association: Nearly level, moderately well drained and somewhat poorly drained silty soils formed in alluvium

NEARLY LEVEL, CLAYEY AND SILTY SOILS; ON LEVEES AND FLOOD PLAINS

13	Sharkey association: Nearly level, poorly drained clayey and silty soils formed in alluvium

NEARLY LEVEL TO MODERATELY SLOPING, SANDY SOILS; ON LEVEES AND TERRACES

15	Clana-Malden association: Nearly level, moderately well drained and excessively drained sandy soils formed in alluvium

NEARLY LEVEL, LOAMY, SILTY, AND SANDY SOILS; ON LEVEES AND TERRACES

18	Lilbourn-Dundee association: Nearly level, somewhat poorly drained loamy and silty soils formed in alluvium

*The terms for texture used in the descriptive heading apply to the surface layer of the major soils.

Compiled 1980

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSOURI AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

MISSISSIPPI COUNTY, MISSOURI

Scale 1:190,080

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 6 Kilometers

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
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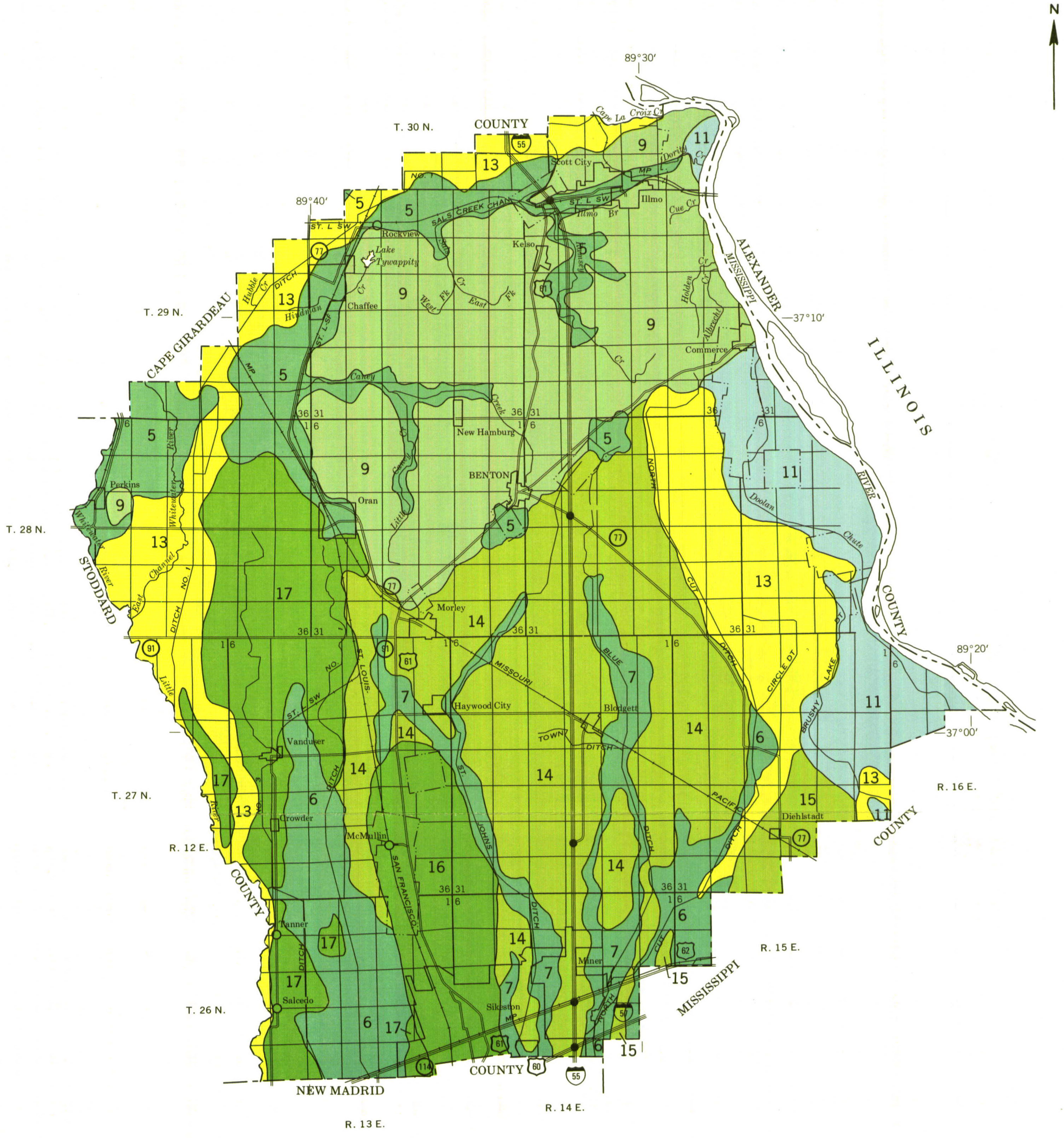
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ALEXANDER COUNTY
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STODDARD COUNTY
NEW MADRID COUNTY
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Oran
Perkins
Morley
Haywood City
Blodgett
Vanduser
Crowder
McMullin
Diehlstadt
Tanner
Salcedo
Miner
Sikeston
Cape La Croix Cr
Dorita Cr
Cue Cr
Holden Cr
Albrecht Cr
Ramsey Cr
Sals Creek Chan
Hubble Cr
Hindman Cr
Caney Creek
Little Caney Cr
West Fk
East Fk
Whitewater River
East Channel
Doolan
Chute
Brushy Lake Dt
Circle Dt
North Cut Ditch
Blue Ditch
Town Ditch
St. Johns Ditch
San Francisco
Little River
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SOIL LEGEND*

NEARLY LEVEL, SILTY, LOAMY, AND SANDY SOILS; ON FLOOD PLAINS

5	Adler-Falaya association: Nearly level, moderately well drained and somewhat poorly drained silty soils formed in alluvium
6	Sikeston association: Nearly level, poorly drained loamy soils formed in alluvium
7	Diehlstadt association: Nearly level, somewhat poorly drained sandy and loamy soils formed in alluvium

GENTLY SLOPING TO VERY STEEP, SILTY SOILS; ON UPLANDS

9	Memphis association: Gently sloping to very steep, well drained silty soils formed in loess

NEARLY LEVEL, SILTY AND LOAMY SOILS; ON LEVEES, TERRACES, AND FLOOD PLAINS

11	Commerce-Caruthersville association: Nearly level, somewhat poorly drained and moderately well drained silty and loamy soils formed in alluvium

NEARLY LEVEL, CLAYEY AND SILTY SOILS; ON LEVEES AND FLOOD PLAINS

13	Sharkey association: Nearly level, poorly drained clayey and silty soils formed in alluvium

NEARLY LEVEL TO MODERATELY SLOPING, SANDY SOILS; ON LEVEES AND TERRACES

14	Scotco association: Gently and moderately sloping, excessively drained sandy soils formed in alluvium
15	Clana-Malden association: Nearly level, moderately well drained and excessively drained sandy soils formed in alluvium

NEARLY LEVEL, LOAMY, SILTY, AND SANDY SOILS; ON LEVEES AND TERRACES

16	Bosket-Dubbs-Malden association: Nearly level, well drained and excessively drained loamy, silty, and sandy soils formed in alluvium
17	Farrenburg-Lilbourn-Broseley association: Nearly level, somewhat excessively drained to somewhat poorly drained loamy and sandy soils formed in alluvium

*The terms for texture used in the descriptive heading apply to the surface layer of the major soils.

Compiled 1980

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSOURI AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
SCOTT COUNTY, MISSOURI

Scale 1:190,080

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 6 Kilometers

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
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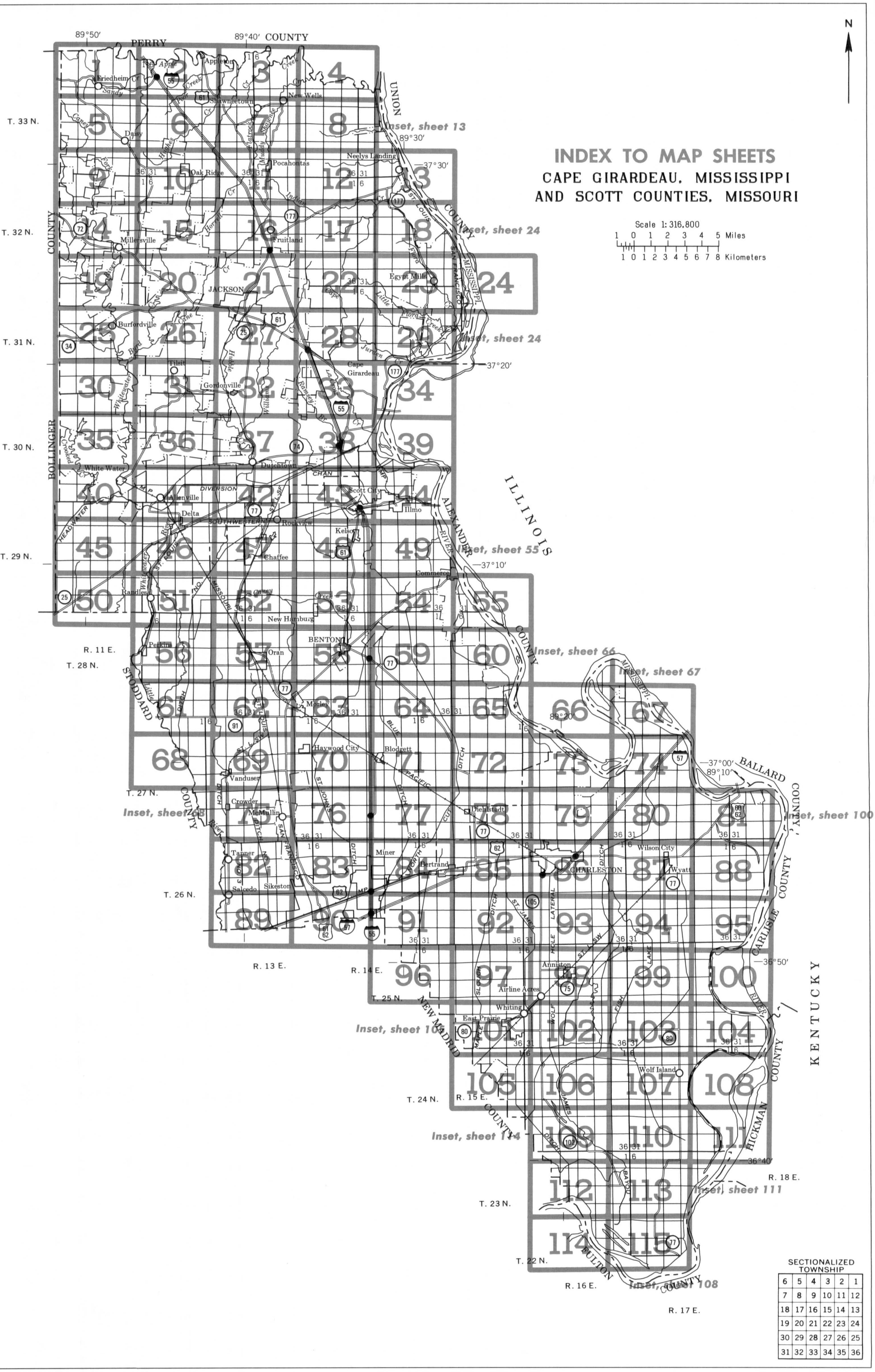
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BALLARD COUNTY
CARLISLE COUNTY
HICKMAN COUNTY
FULTON COUNTY
MISSISSIPPI RIVER
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Friedheim
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Appleton
Shawneetown
New Wells
Daisy
Oak Ridge
Pocahontas
Neelys Landing
Millersville
Fruitland
JACKSON
Egypt Mills
Burfordville
Tilsit
Gordonville
Cape Girardeau
White Water
Dutchtown
Allenville
Delta
Rockview
Scott City
Illmo
Kelso
Chaffee
Commerce
Randles
New Hamburg
BENTON
Perkins
Oran
Morley
Haywood City
Blodgett
Vanduser
Crowder
McMullin
Diehlstadt
Tanner
Salcedo
Sikeston
Miner
Bertrand
CHARLESTON
Wilson City
Wyatt
Anniston
Airline Acres
Whiting
East Prairie
Wolf Island
DIVERSION CHANNEL
HEADWATER DIVERSION
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INDEX TO MAP SHEETS
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI

Scale 1: 316,800

1 0 1 2 3 4 5 Miles

1 0 1 2 3 4 5 6 7 8 Kilometers

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

SOIL LEGEND

Map symbols consist of numbers or a combination of numbers and letters. The initial numbers represent the kind of soil. A capital letter following these numbers indicates the class of slope. Symbols without a slope letter are for nearly level soils or miscellaneous areas. A final number of 3 following the slope letter indicates that the soil is severely eroded.

SYMBOL	NAME
11C	Peridge silt loam, 5 to 9 percent slopes
11D	Peridge silt loam, 9 to 14 percent slopes
11E	Peridge silt loam, 14 to 20 percent slopes
12A	Elsah silt loam, 0 to 3 percent slopes
13	Haymond silt loam, frequently flooded
14E	Holstein loam, 14 to 20 percent slopes
15B	Iva silt loam, 2 to 6 percent slopes
16B	Menfro silt loam, 2 to 5 percent slopes
16C	Menfro silt loam, 5 to 9 percent slopes
16D	Menfro silt loam, 9 to 14 percent slopes
16E	Menfro silt loam, 14 to 30 percent slopes
17F	Menfro-Clarksville complex, 20 to 60 percent slopes
18D	Menfro-Bucklick silt loams, 9 to 14 percent slopes
18E	Menfro-Bucklick silt loams, 14 to 20 percent slopes
19D	Menfro-Holstein silt loams, 9 to 14 percent slopes
19E	Menfro-Holstein silt loams, 14 to 20 percent slopes
20E	Poynor cherty silt loam, 14 to 30 percent slopes
21D	Menfro-Bucklick silt loams, karst, 5 to 20 percent slopes
22	Wilbur silt loam, frequently flooded
23	Wakeland silt loam, frequently flooded
31	Adler silt loam
32	Allemands muck
33	Alligator silty clay
34	Beulah fine sandy loam
35	Diehlstadt loamy coarse sand
36	Bosket fine sandy loam
37A	Bowdre silty clay loam, 0 to 3 percent slopes
38A	Broseley loamy fine sand, 0 to 3 percent slopes
39	Cairo silty clay
40	Clana loamy fine sand
41A	Caruthersville very fine sandy loam, 0 to 3 percent slopes
42	Commerce silty clay loam
43	Cooter silty clay loam
44	Crevasse soils
45	Diehlstadt sandy clay loam
46	Dubbs silt loam
47	Dundee silt loam
48	Farrenburg fine sandy loam
49	Jackport silty clay loam
50	Lilbourn fine sandy loam
51A	Malden loamy fine sand, 0 to 3 percent slopes
52B	Memphis silt loam, 2 to 5 percent slopes
52C	Memphis silt loam, 5 to 9 percent slopes
52D3	Memphis silt loam, 9 to 14 percent slopes, severely eroded
52E3	Memphis silt loam, 14 to 40 percent slopes, severely eroded
53	Mhoon silt loam
54	Reelfoot silt loam
55	Roellen silty clay
56E	Saffell soils, 20 to 45 percent slopes
57B	Scotco sand, 0 to 4 percent slopes
57C	Scotco sand, 4 to 12 percent slopes
58	Sharkey silty clay
59	Sharkey silty clay loam
60	Sharkey-Steele complex
61	Sikeston loam
62	Steele fine sand
63	Tiptonville silt loam
64	Towosahgy fine sandy loam
65	Tunica silty clay loam
66	Wardell loam
67	Orthents-Water complex
68	Pits, quarry
70	Falaya silt loam

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool — Davis Airstrip, FLOOD POOL LINE

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNATIONS

- Interstate — 79
- Federal — 410
- State — 52
- County, farm or ranch — 378

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small — water, w

PITS

- Gravel pit ⚒
- Mine or quarry ⚒

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas) ▪
- Church
- School
- Indian mound (label) — Indian Mound
- Located object (label) — Tower ○
- Tank (label) — GAS ●
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) — CANAL
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial — water, w
- Intermittent — int, i

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS — 33, 5203

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

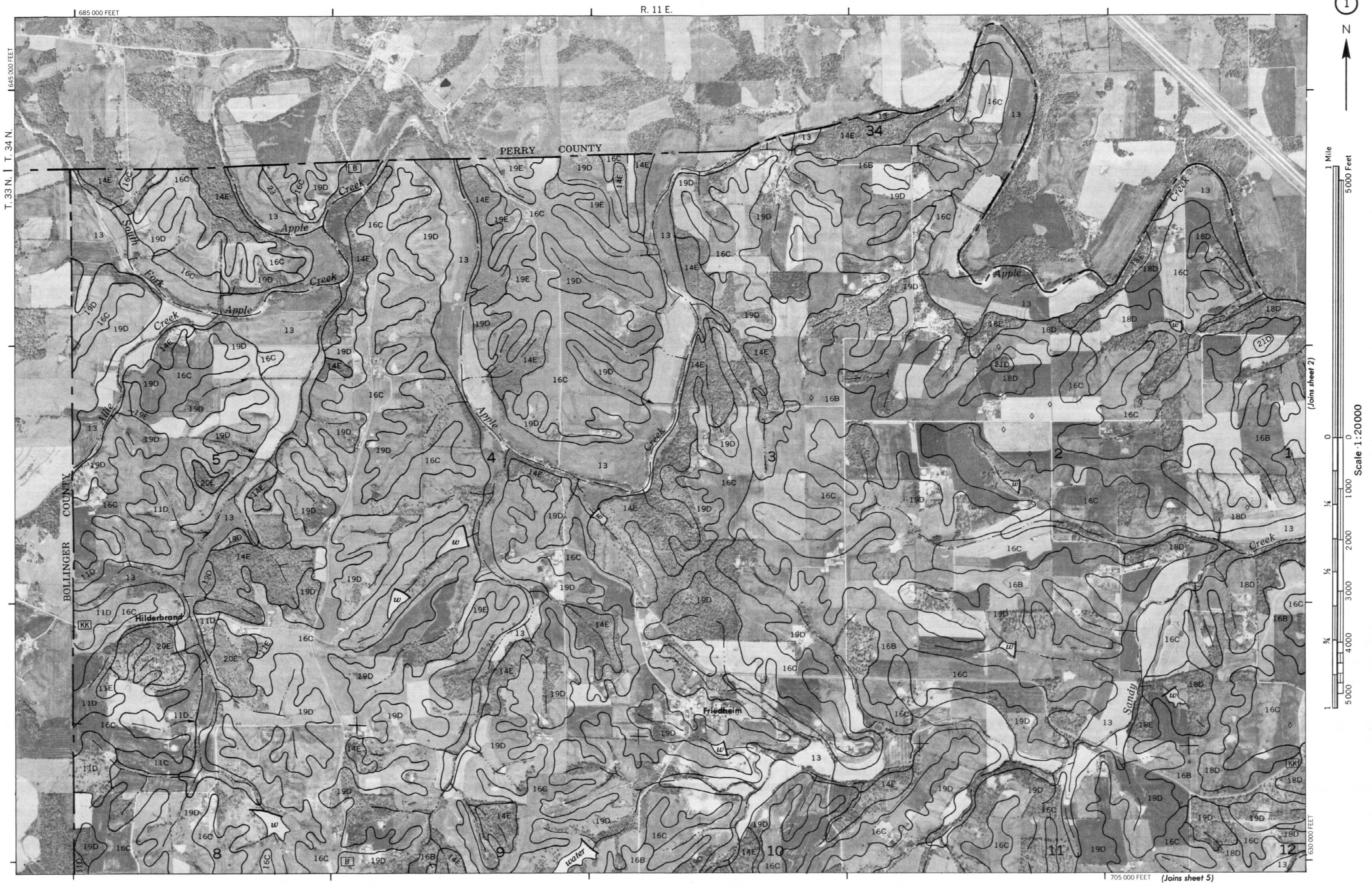
DEPRESSION OR SINK ◇

SOIL SAMPLE SITE (normally not shown) Ⓢ

MISCELLANEOUS

- Blowout
- Clay spot ✻
- Gravelly spot
- Gumbo, slick or scabby spot (sodic) ø
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot +
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 1

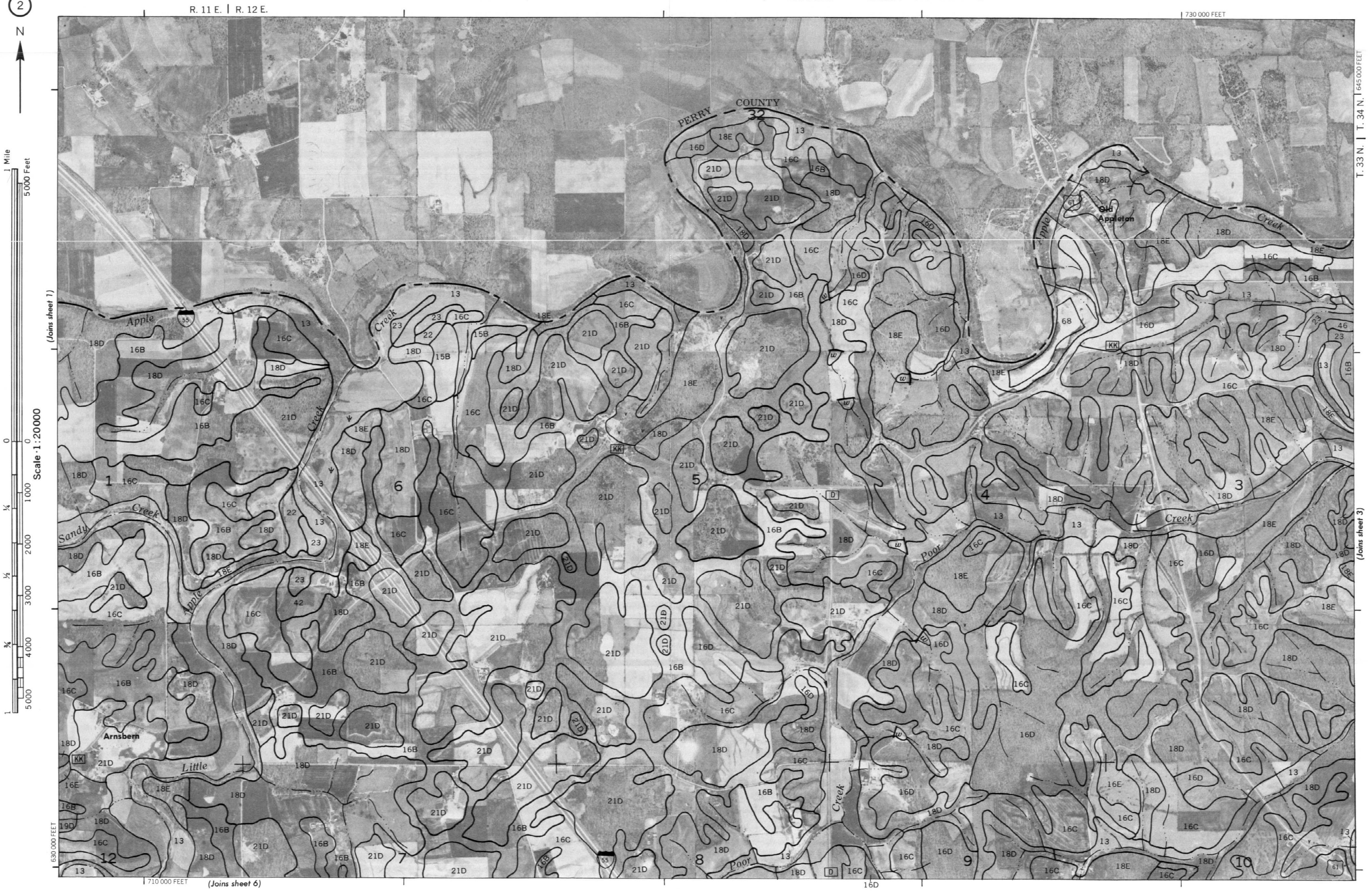


①
N
685 000 FEET
R. 11 E.
645 000 FEET
T. 33 N. | T. 34 N.
PERRY COUNTY
BOLLINGER COUNTY
South Fork
Apple Creek
Sandy
Creek
Hilderbrand
Friedheim
KK
B
water
w
34
1
2
3
4
5
8
9
10
11
12
13
14E
16B
16C
18D
18E
19D
19E
20E
21D
11C
11D
11E
23
(Joins sheet 2)
(Joins sheet 5)
705 000 FEET
630 000 FEET
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 1

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 2



2
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
R. 11 E. | R. 12 E.
T. 33 N. | T. 34 N.
730 000 FEET
645 000 FEET
710 000 FEET
630 000 FEET
(Joins sheet 1)
(Joins sheet 3)
(Joins sheet 6)
PERRY COUNTY
32
Old Appleton
Arnsbern
Apple Creek
Sandy Creek
Little Creek
Poor Creek
KK
D
55
61
1
3
4
5
6
7
8
9
10
12
13
15B
16B
16C
16D
16E
18D
18E
19D
21D
22
23
42
46
68
w

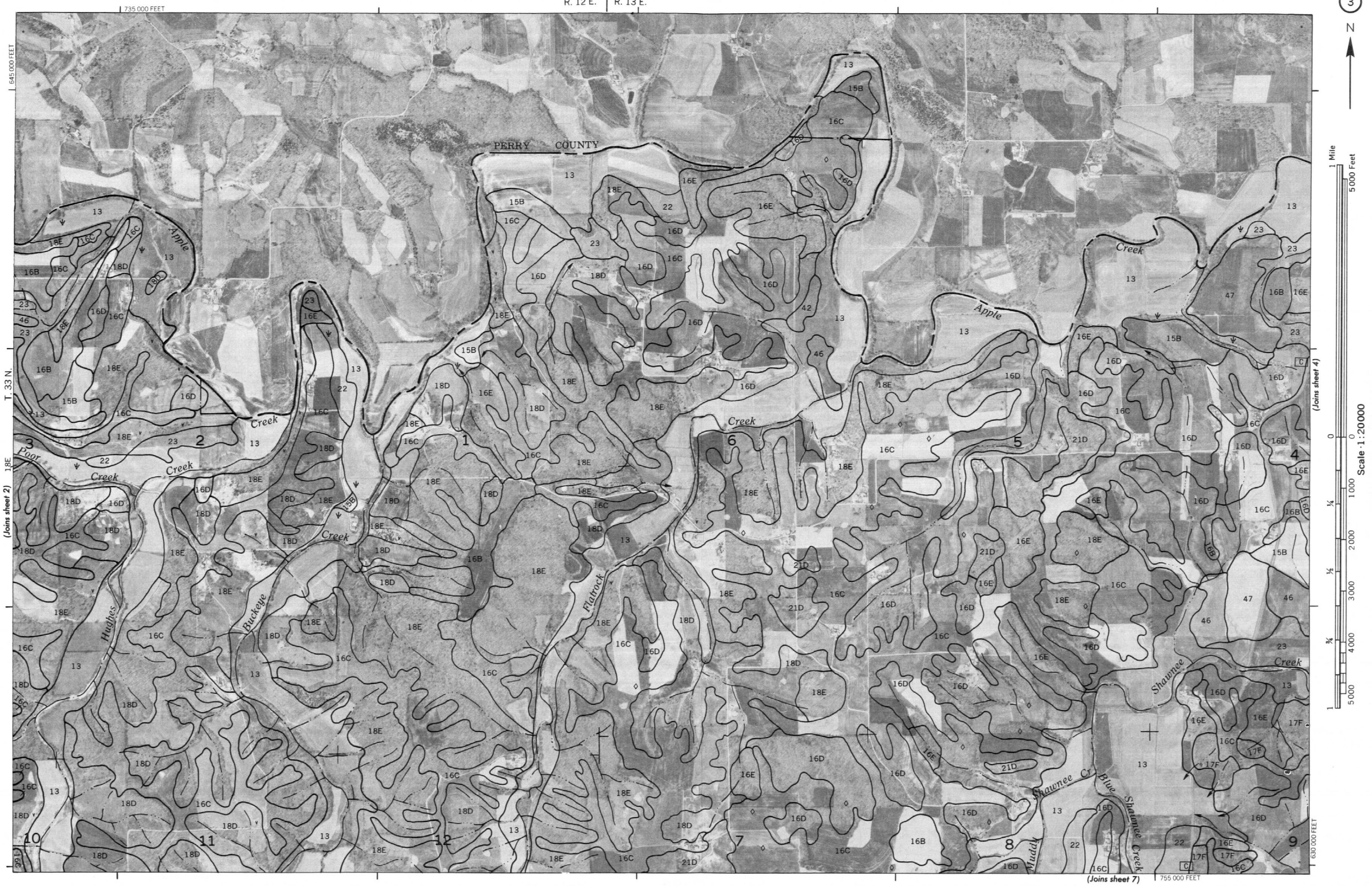
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

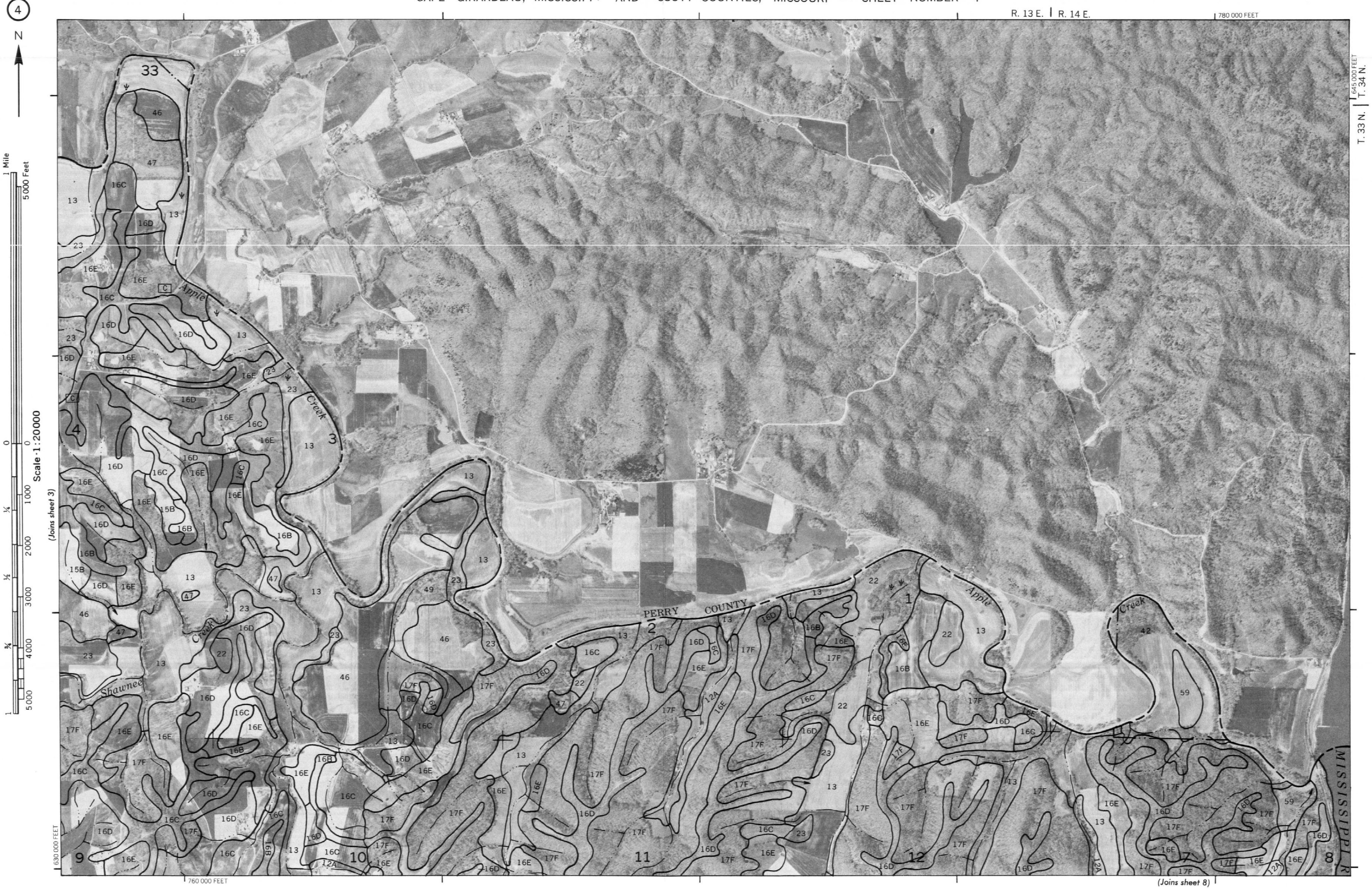
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 2

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 3

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 3

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

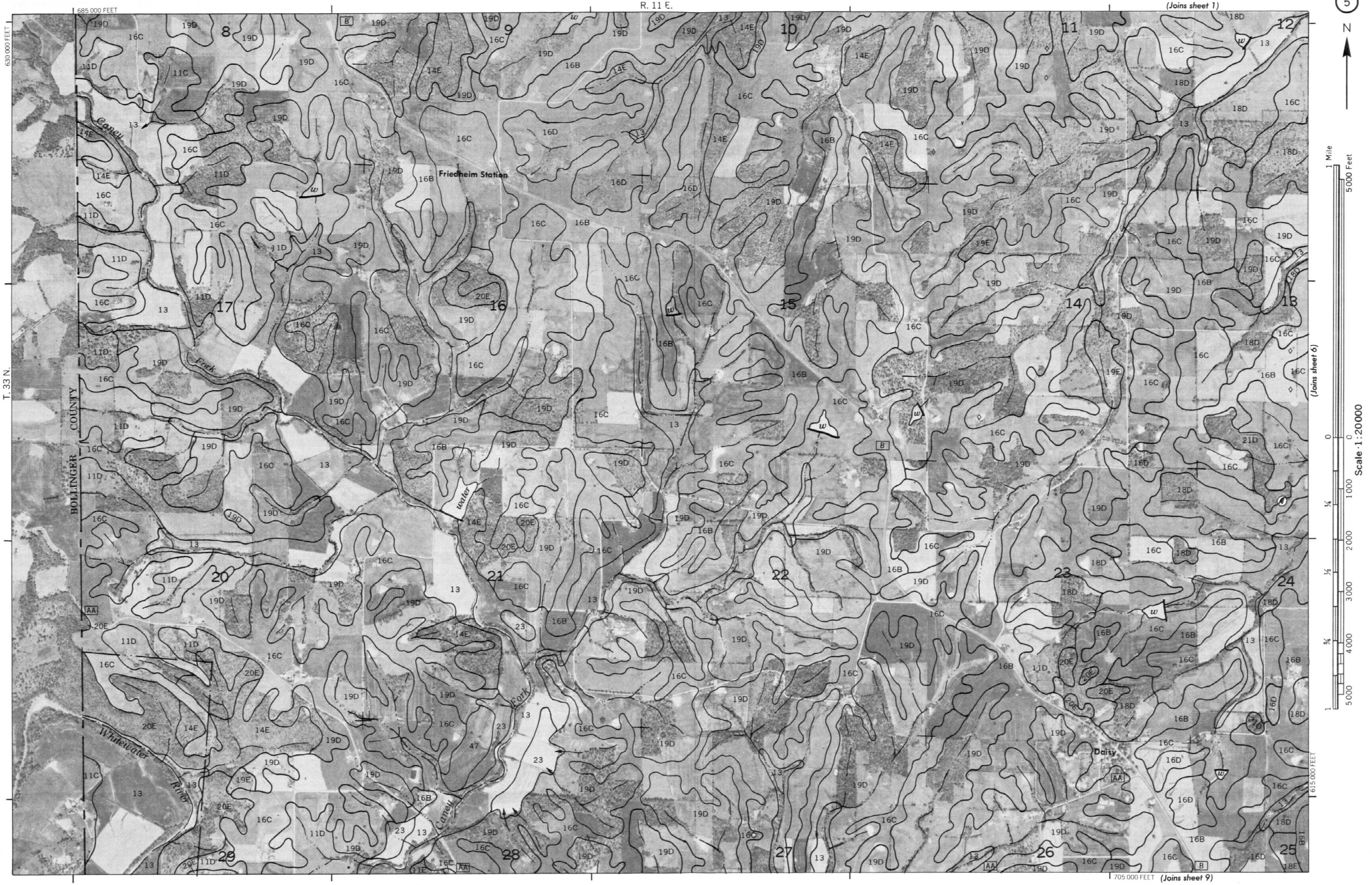

③
N
735 000 FEET
R. 12 E.
R. 13 E.
645 000 FEET
PERRY COUNTY
T. 33 N.
Apple Creek
Poor Creek
Creek
Hughes
Buckeye
Flatrock
Shawnee
Shawnee Cr
Blue Shawnee Creek
Muddy
(Joins sheet 2)
(Joins sheet 4)
(Joins sheet 7)
630 000 FEET
755 000 FEET
1
2
3
4
5
6
7
8
9
10
11
12
13
15B
16B
16C
16D
16E
17F
18D
18E
21D
22
23
42
46
47
C
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
Scale 1:20000


4
N
R. 13 E.
R. 14 E.
780 000 FEET
645 000 FEET
T. 34 N.
T. 33 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
(Joins sheet 3)
33
46
47
16C
13
16D
23
16E
C
Apple
Creek
4
3
15B
16B
49
PERRY
COUNTY
2
22
1
Apple
Creek
42
59
17F
12A
Shawnee
Creek
MISSISSIPPI R
9
10
11
12
7
8
630 000 FEET
760 000 FEET
(Joins sheet 8)

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 5

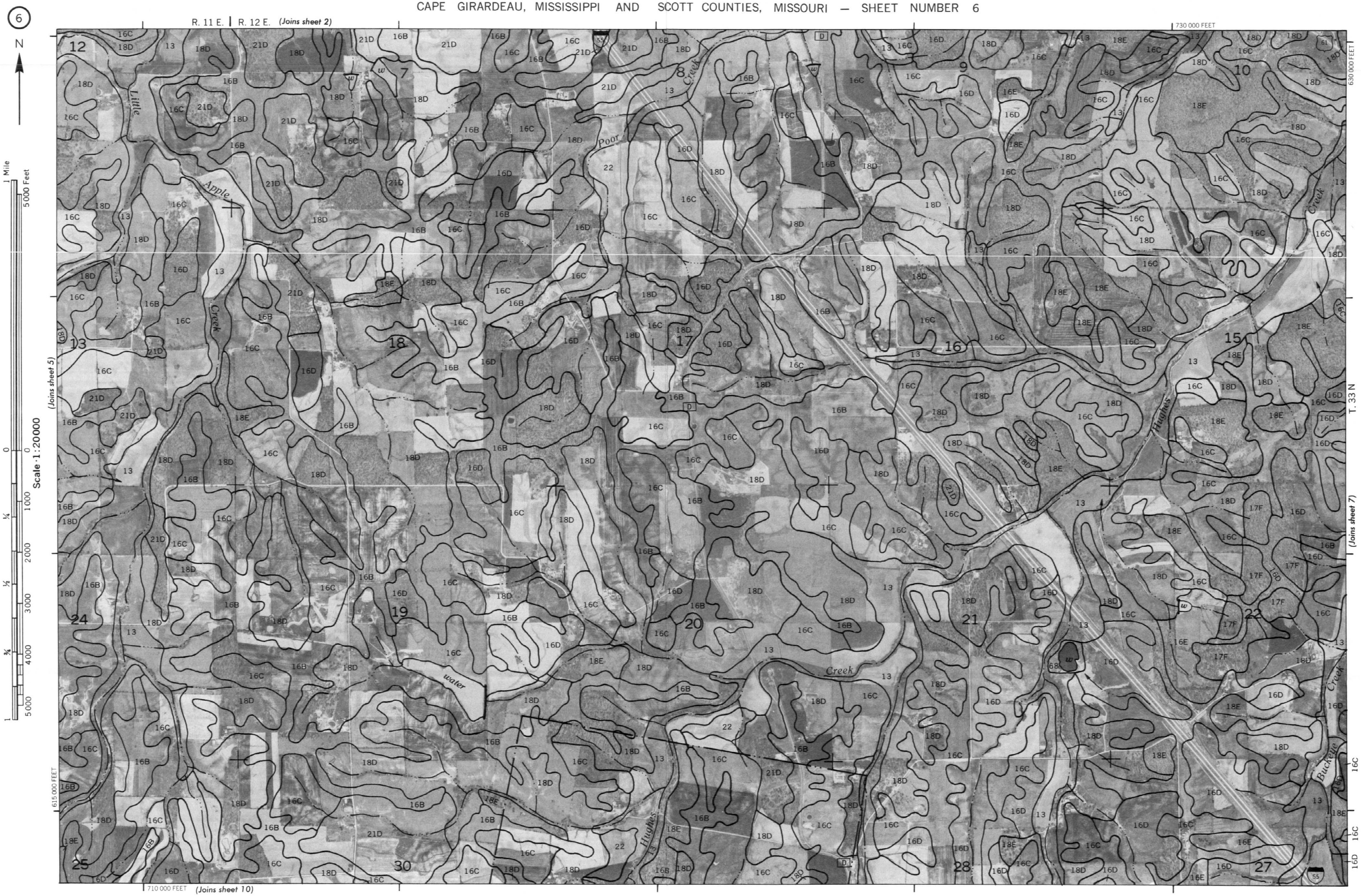
⑤


685 000 FEET
630 000 FEET
R. 11 E.
(Joins sheet 1)
(Joins sheet 6)
(Joins sheet 9)
705 000 FEET
615 000 FEET
T. 33 N.
N
BOLLINGER COUNTY
Friedheim Station
Caney Fork
Whitewater River
Daisy
water
B
AA
8
9
10
11
12
13
14
15
16
17
20
21
22
23
24
25
26
27
28
29
1 Mile
5000 Feet
0
¼
½
¾
1
1000
2000
3000
4000
5000
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 5

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

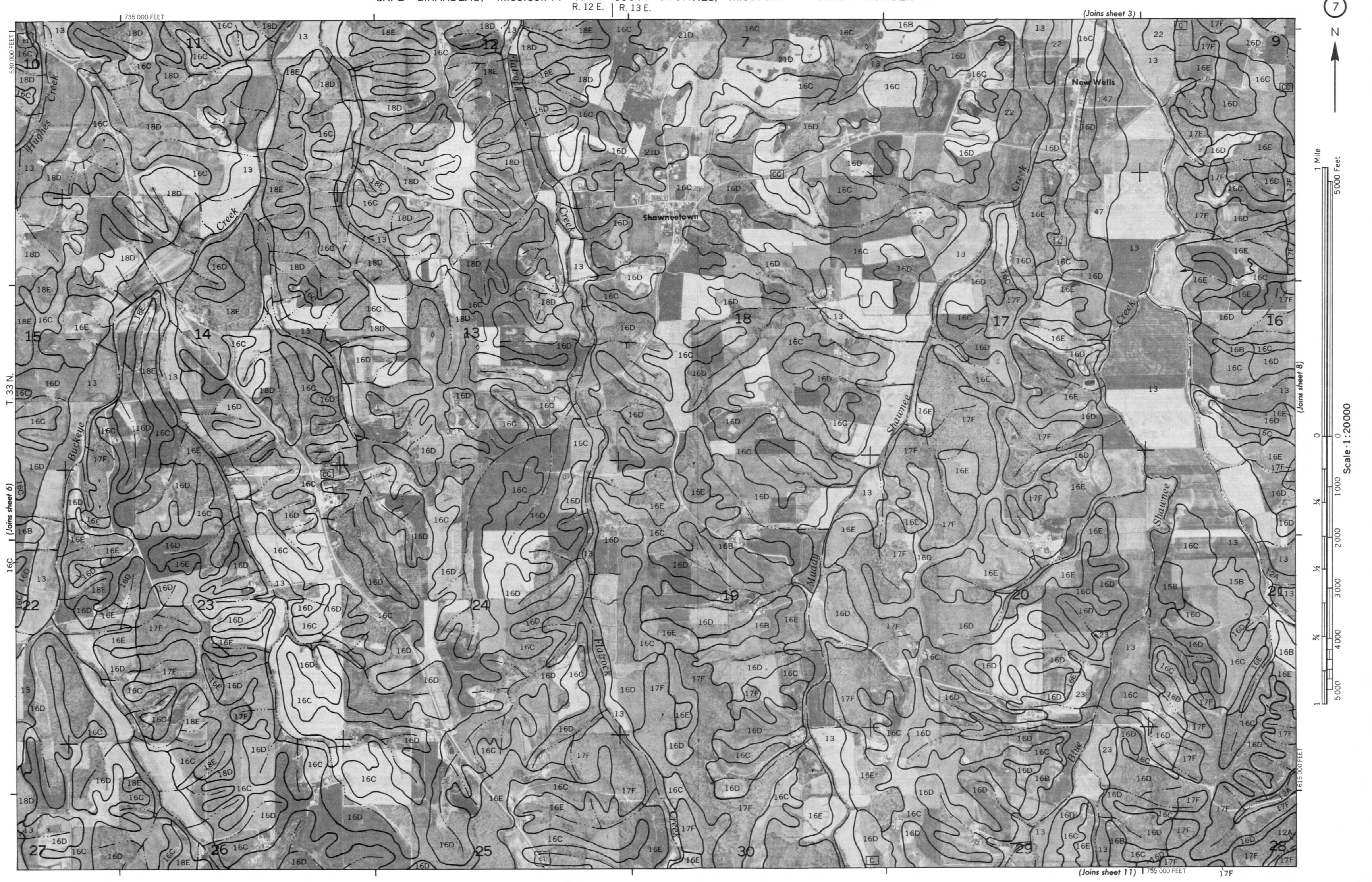
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 6


6
N
R. 11 E. | R. 12 E. (Joins sheet 2)
730 000 FEET
630 000 FEET
(Joins sheet 5)
(Joins sheet 7)
T. 33 N.
615 000 FEET
710 000 FEET (Joins sheet 10)
Scale 1:20000
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
12
7
8
9
10
13
18
17
16
15
24
19
20
21
22
25
30
28
27
Little
Apple
Creek
Poor
Creek
Hughes
Creek
Buckeye
water
55
61
D
w
13
16B
16C
16D
16E
17F
18D
18E
21D
22
68

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 6

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 7

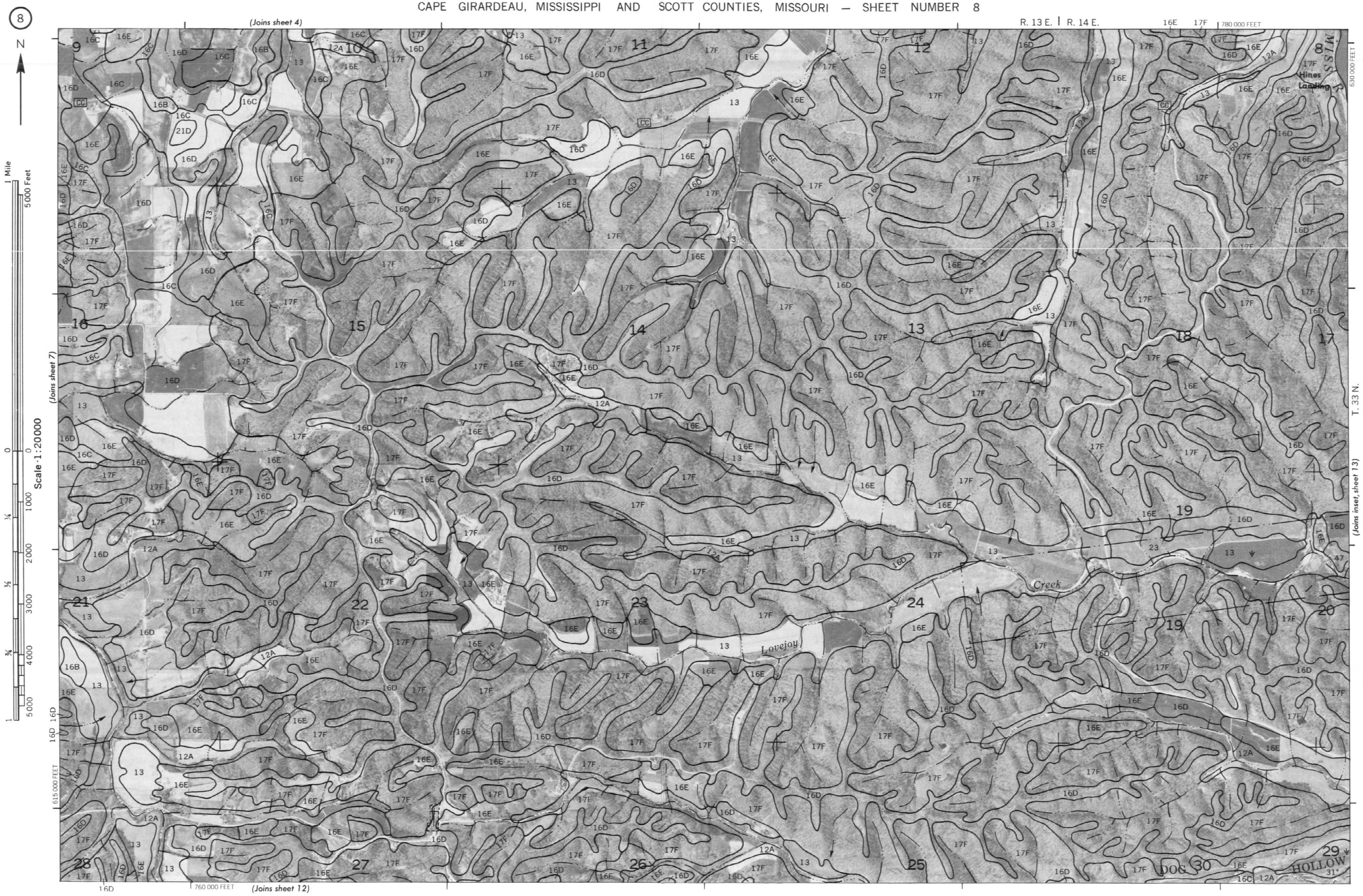


7
N
735 000 FEET
630 000 FEET
R. 12 E.
R. 13 E.
(Joins sheet 3)
(Joins sheet 6)
(Joins sheet 8)
(Joins sheet 11)
615 000 FEET
T. 33 N.
Hughes Creek
Creek
Flatrock
Flatrock Creek
Buckeye
Shawneetown
New Wells
Shawnee Creek
Shawnee
Muddy
Blue
Creek
CC
C
61
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
13
16B
16C
16D
16E
17F
18D
18E
21D
22
23
47
12A
15B
1 Mile
5000 Feet
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 7

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

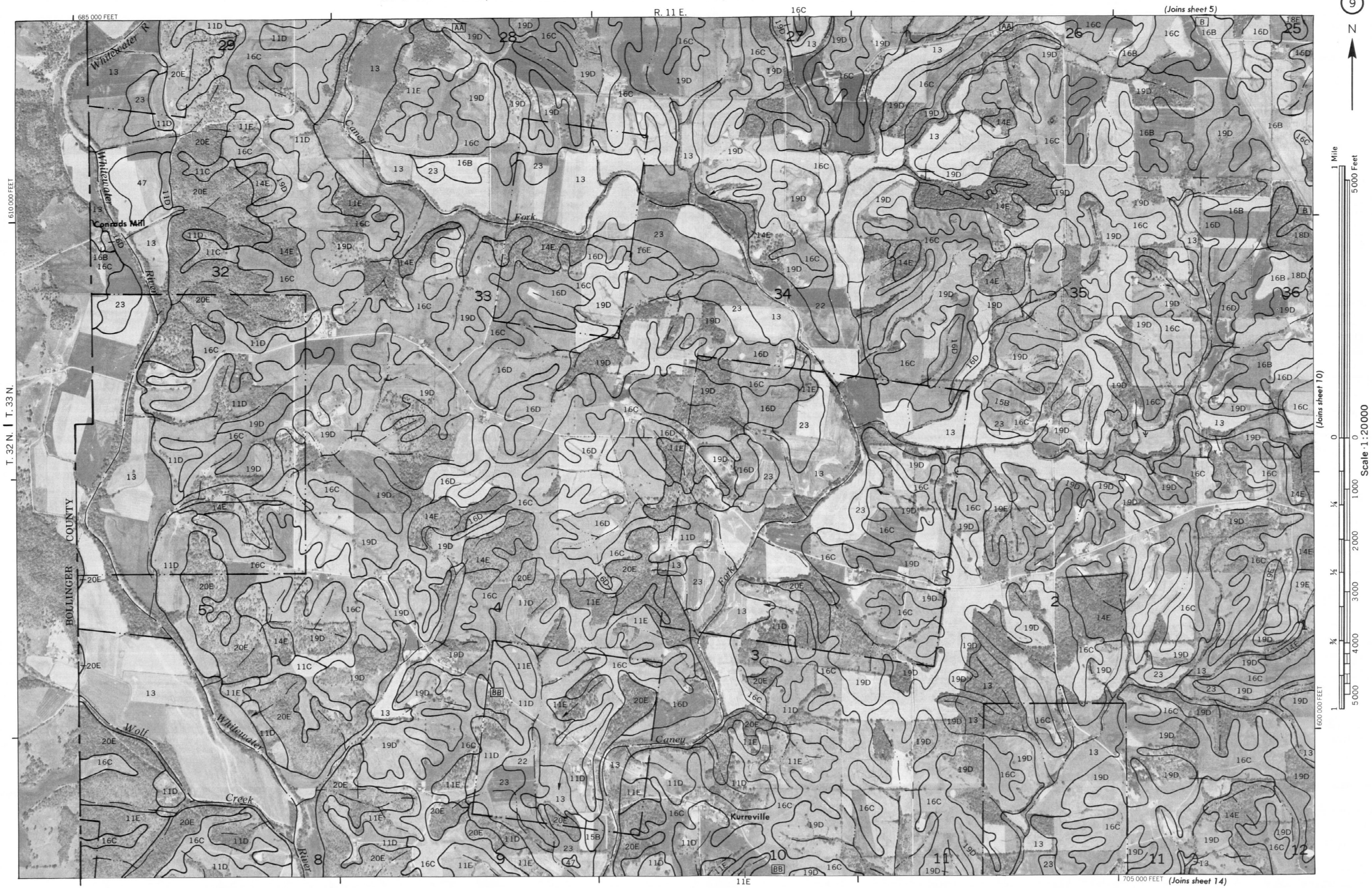
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 8


8
N
(Joins sheet 4)
R. 13 E.
R. 14 E.
780 000 FEET
630 000 FEET
Hines Landing
MISS R
T. 33 N.
(Joins inset, sheet 13)
(Joins sheet 7)
(Joins sheet 12)
760 000 FEET
615 000 FEET
Lovejoy
Creek
DOG HOLLOW
CC
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
9
10
11
12
7
8
16
15
14
13
18
17
21
22
23
24
19
20
28
27
26
25
30
29
12A
13
16B
16C
16D
16E
17F
21D
47
31*

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 8

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 9

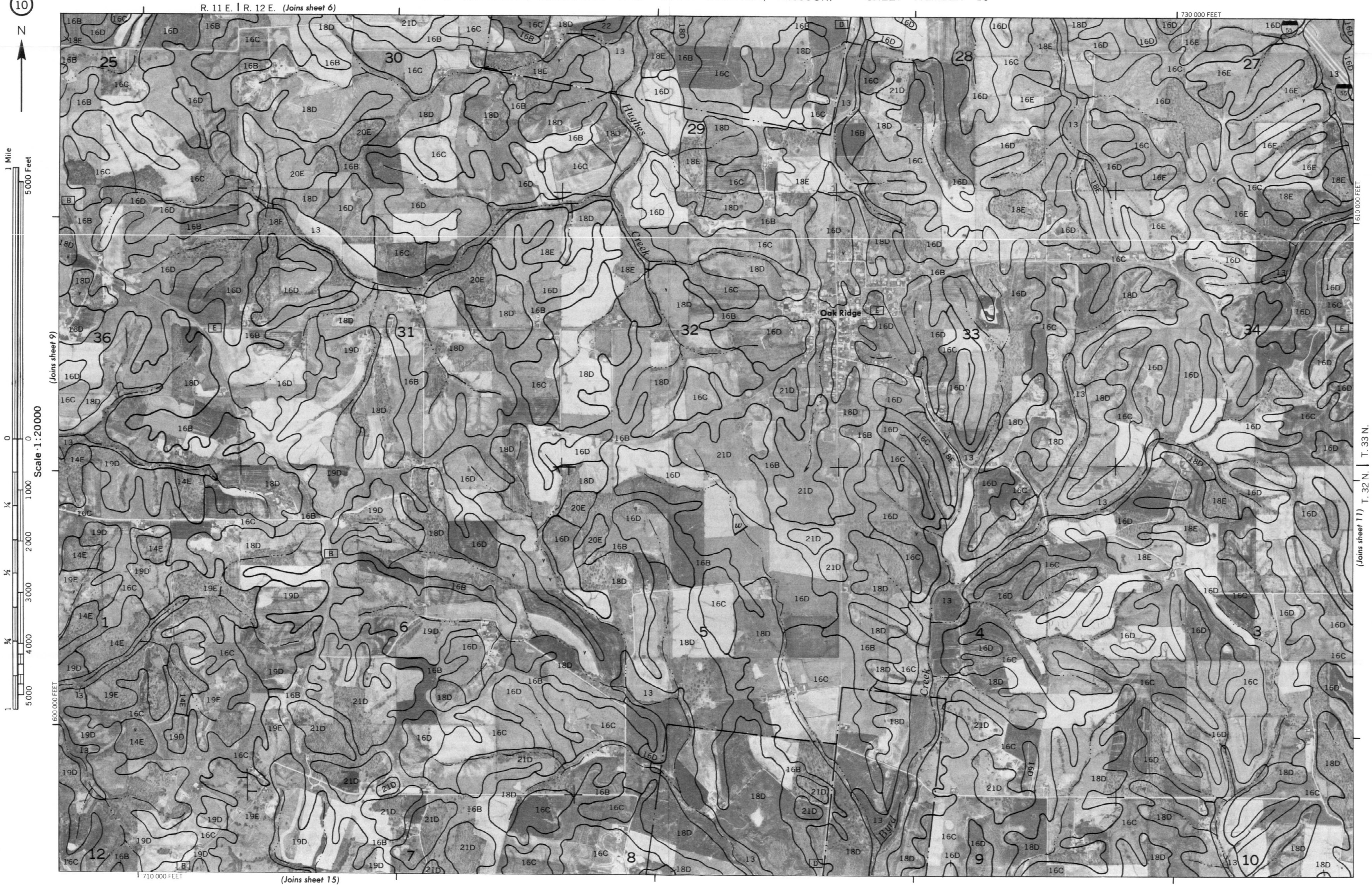


9
N
(Joins sheet 5)
(Joins sheet 10)
(Joins sheet 14)
685 000 FEET
610 000 FEET
600 000 FEET
705 000 FEET
R. 11 E.
T. 33 N.
T. 32 N.
BOLLINGER COUNTY
Whitewater R
Whitewater
River
Conrads Mill
Caney
Fork
Fork
Caney
Wolf
Creek
Whitewater
River
Kurreville
AA
AA
B
B
BB
BB
29
28
27
26
25
32
33
34
35
36
5
4
3
2
1
8
9
10
11
11
12
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 9

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

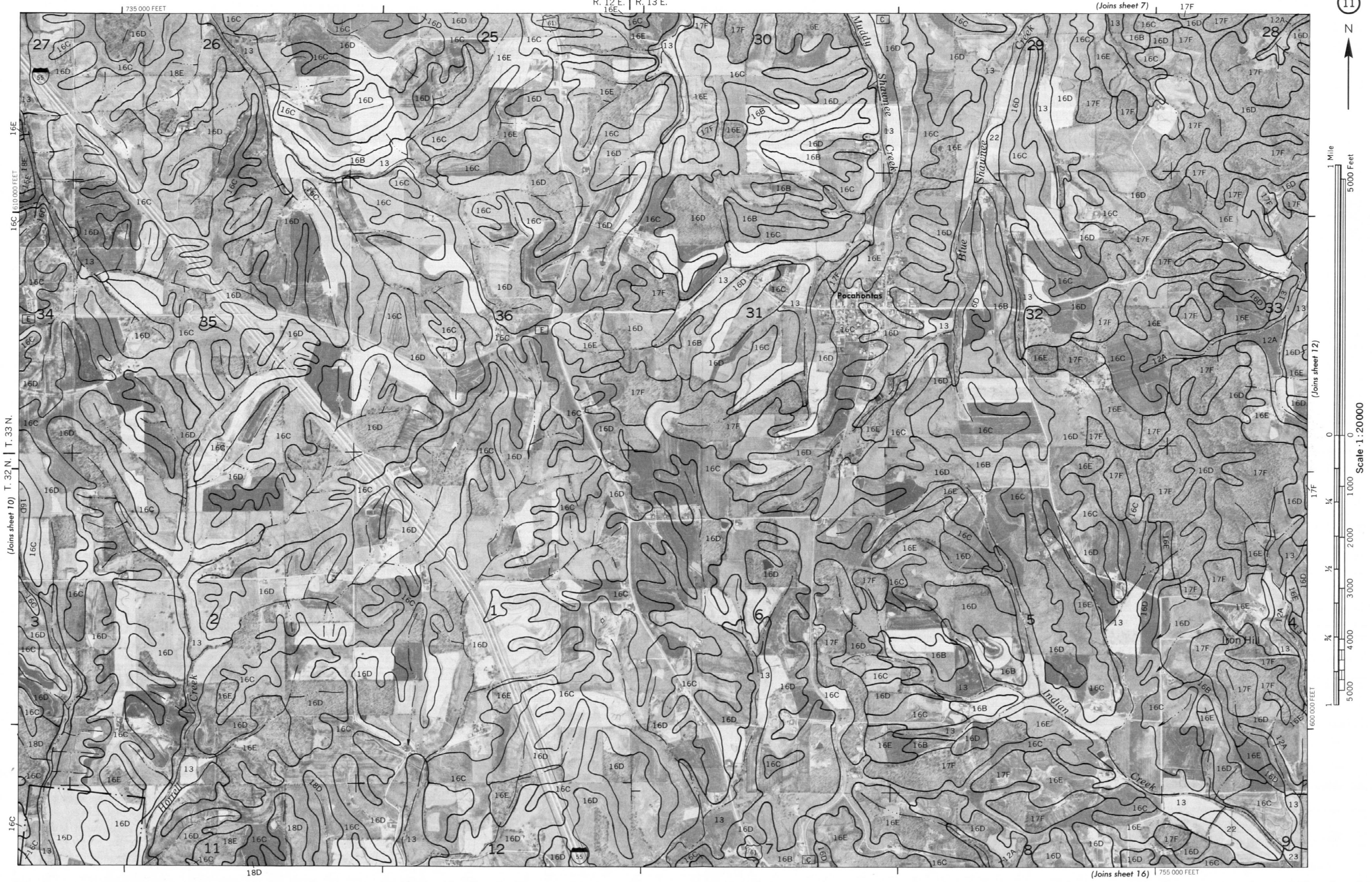
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 10


⑩
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
R. 11 E. | R. 12 E. (Joins sheet 6)
(Joins sheet 9)
(Joins sheet 11)
(Joins sheet 15)
730 000 FEET
610 000 FEET
600 000 FEET
710 000 FEET
T. 33 N.
T. 32 N.
Oak Ridge
Hughes Creek
Byrd Creek
25
30
29
28
27
36
31
32
33
34
1
6
5
4
3
12
7
8
9
10
55

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 10

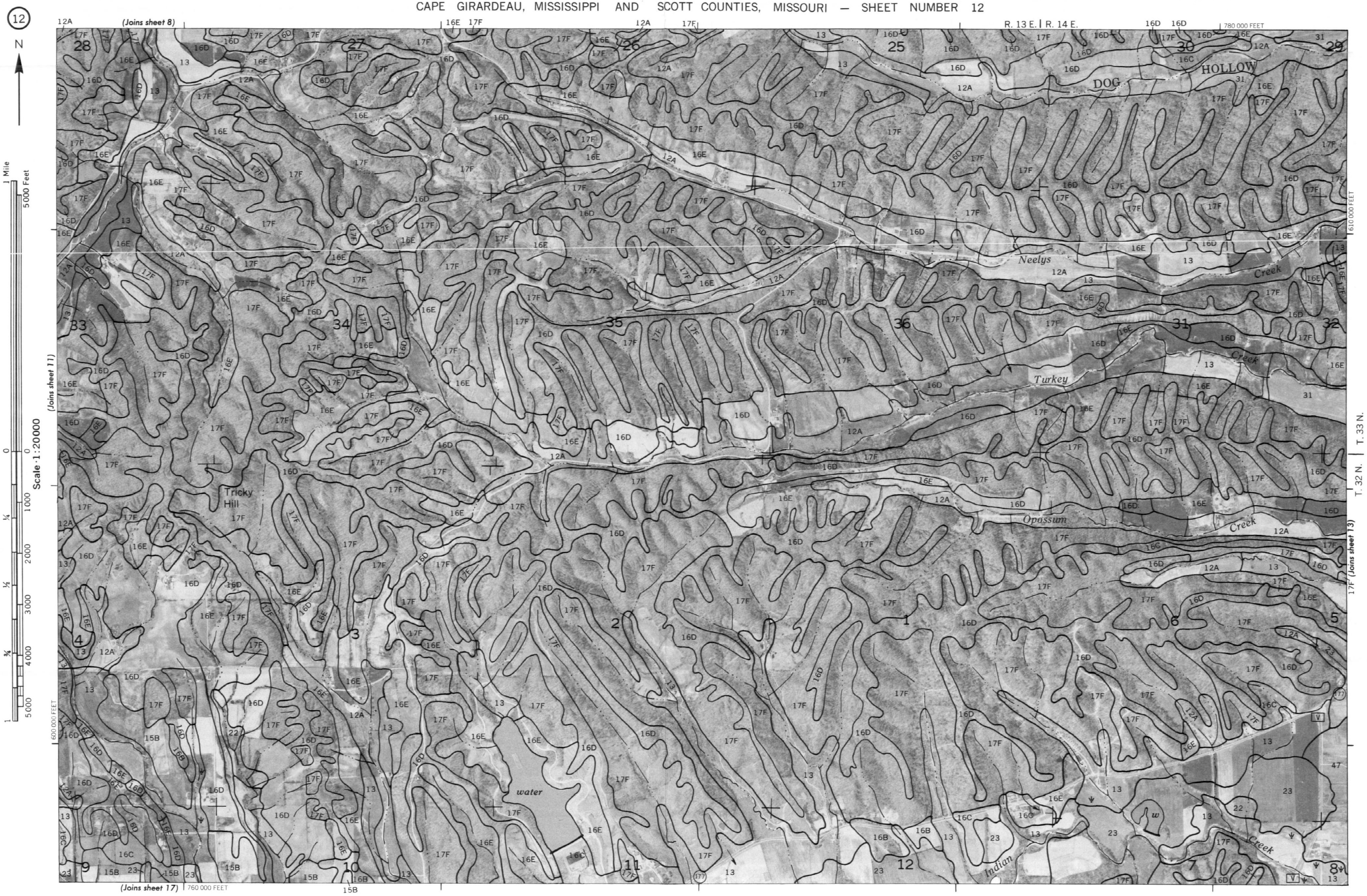
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 11


11
R. 12 E.
R. 13 E.
735 000 FEET
(Joins sheet 7)
(Joins sheet 10)
(Joins sheet 12)
(Joins sheet 16)
755 000 FEET
610 000 FEET
600 000 FEET
T. 33 N.
T. 32 N.
N
Pocahontas
Iron Hill
Muddy Shawnee Creek
Blue Shawnee Creek
Indian Creek
Horrell Creek
55
61
27
26
25
30
29
28
34
35
36
31
32
33
3
2
1
6
5
4
11
12
7
8
9
Scale 1:20 000
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 11

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 12

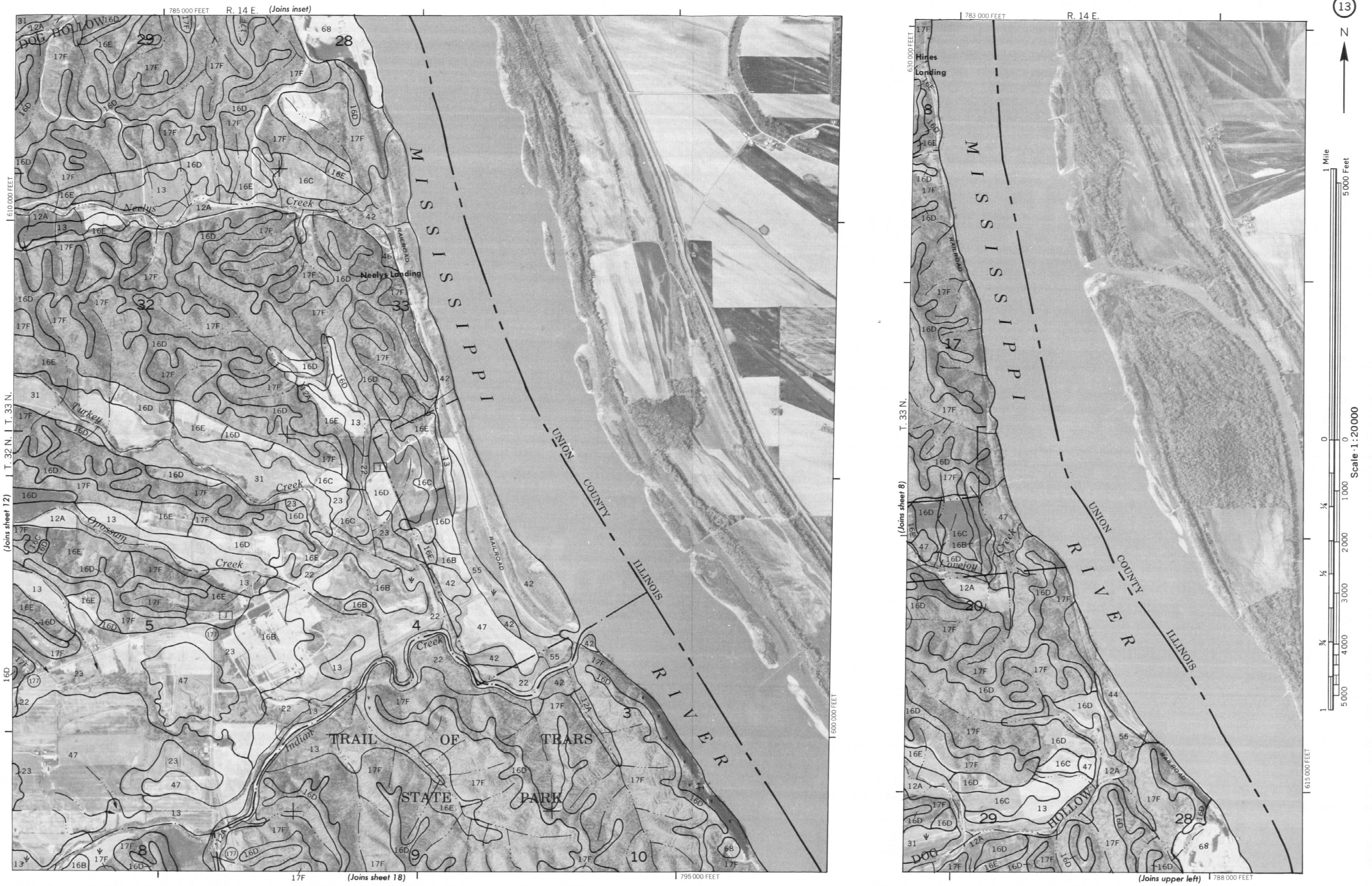


12
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
(Joins sheet 8)
(Joins sheet 11)
(Joins sheet 13)
(Joins sheet 17)
R. 13 E. | R. 14 E.
T. 33 N.
T. 32 N.
780 000 FEET
760 000 FEET
610 000 FEET
600 000 FEET
DOG HOLLOW
Neelys Creek
Turkey Creek
Opossum Creek
Indian Creek
Tricky Hill
water
177
V

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 12

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 13

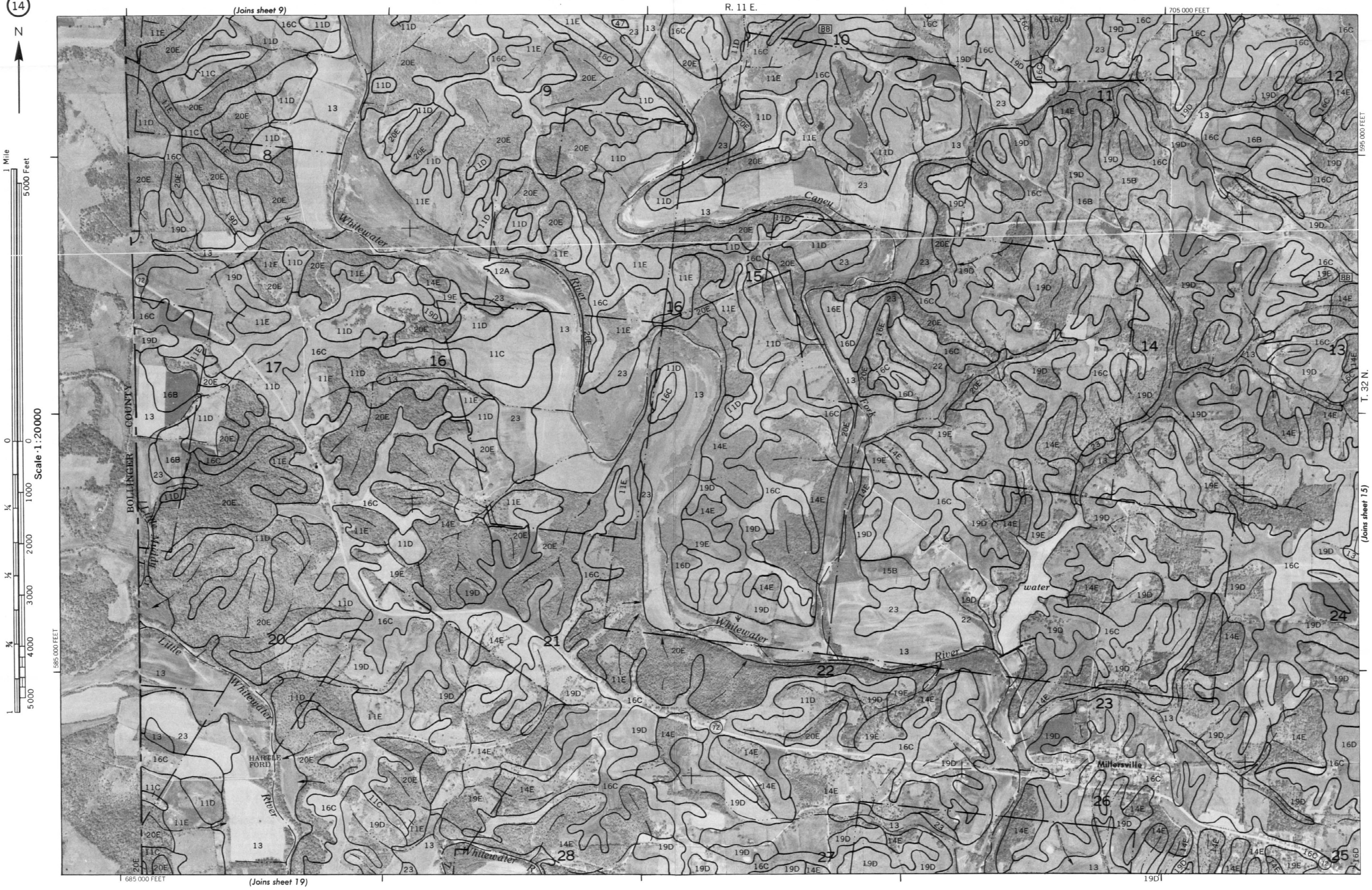

13
785 000 FEET
R. 14 E.
(Joins inset)
DOG HOLLOW
29
28
68
610 000 FEET
Neelys Creek
RAILROAD
Neelys Landing
32
33
MISSISSIPPI RIVER
UNION COUNTY ILLINOIS
T. 33 N.
T. 32 N.
Turkey Creek
Opossum Creek
(Joins sheet 12)
5
4
3
10
9
8
Indian Creek
TRAIL OF TEARS STATE PARK
177
16D
(Joins sheet 18)
17F
795 000 FEET
600 000 FEET
783 000 FEET
630 000 FEET
Hines Landing
17
20
Lovejoy Creek
(Joins sheet 8)
HOLLOW
615 000 FEET
(Joins upper left)
788 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 13

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

⑭

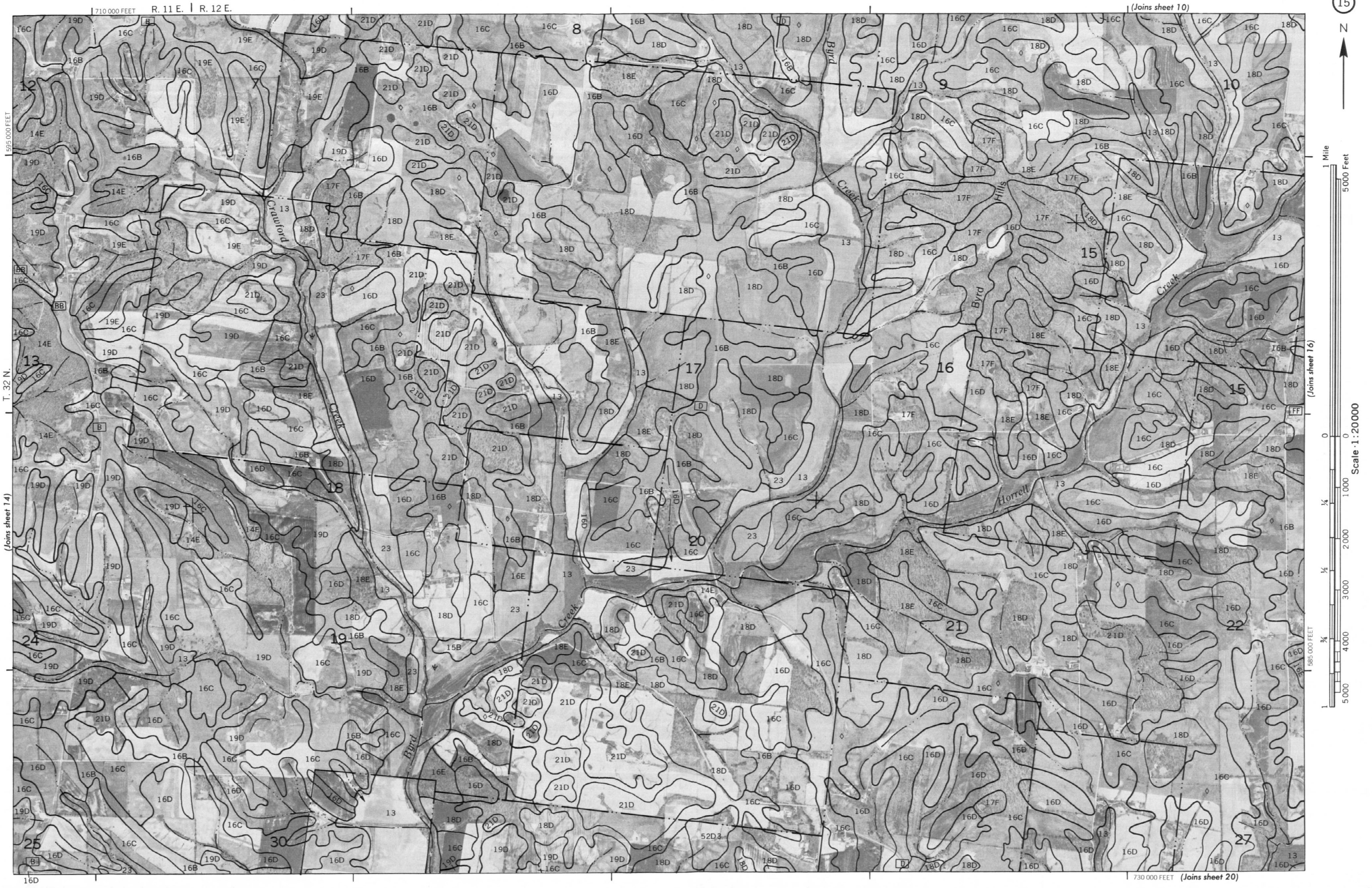
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 14


(Joins sheet 9)
R. 11 E.
705 000 FEET
595 000 FEET
T. 32 N.
(Joins sheet 15)
(Joins sheet 19)
685 000 FEET
585 000 FEET
N
Scale 1:20000
1 Mile
0
¼
½
¾
1
5000 Feet
0
1000
2000
3000
4000
5000
BOLLINGER COUNTY
Whitewater River
Caney Fork
Little Whitewater River
Little Muddy Cr.
water
HARTLE FORD
Millersville
72
47
BB
8
9
10
11
12
13
14
15
16
17
20
21
22
23
24
25
26
27
28
11C
11D
11E
12A
13
14E
15B
16B
16C
16D
16E
19D
19E
20E
22
23
24

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 14

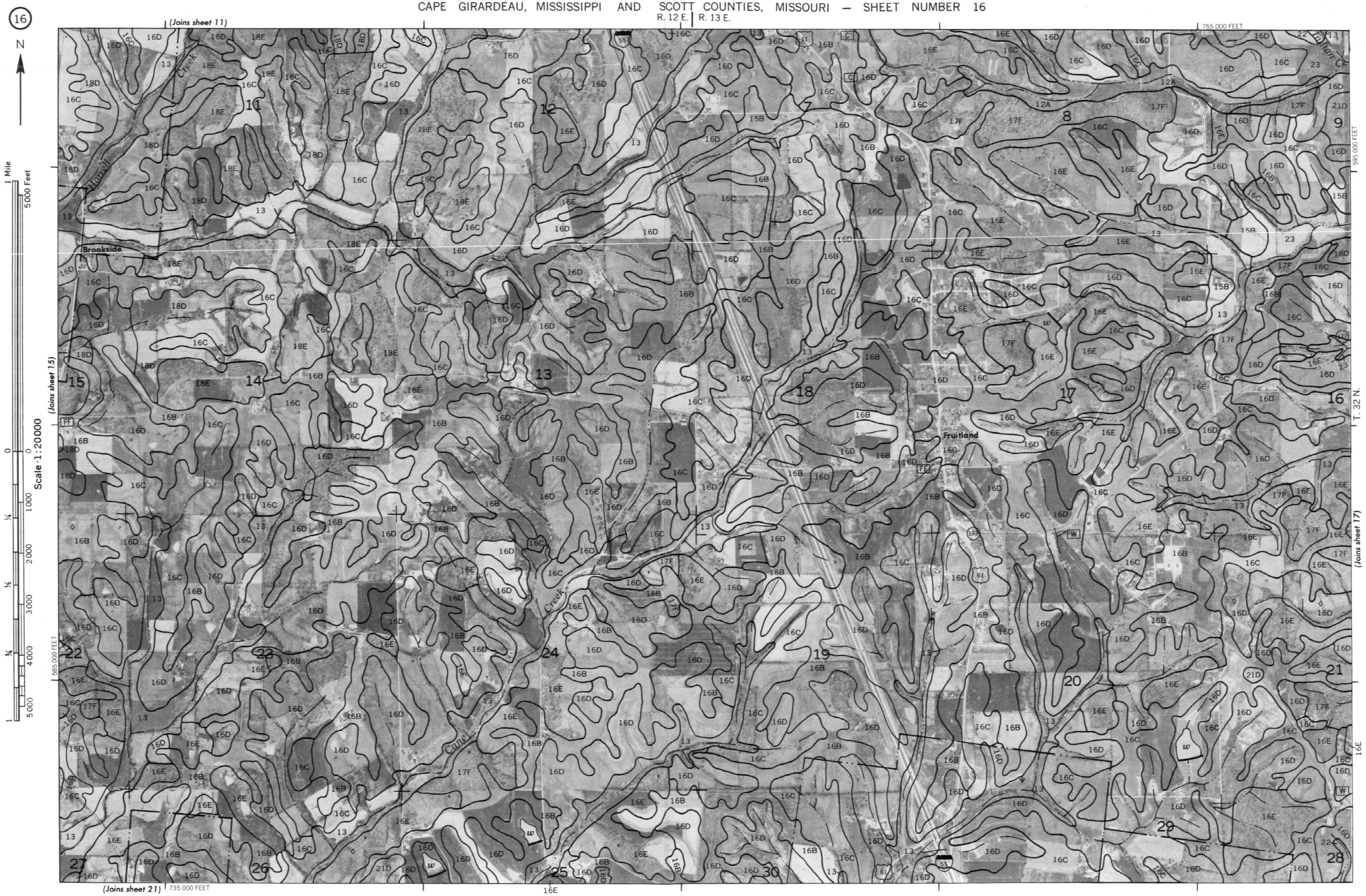
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 15


15
710 000 FEET
R. 11 E.
R. 12 E.
(Joins sheet 10)
595 000 FEET
T. 32 N.
(Joins sheet 14)
(Joins sheet 16)
(Joins sheet 20)
730 000 FEET
585 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
Crawford Creek
Byrd Creek
Byrd Hills
Horrell Creek
7
8
9
10
12
13
15
16
17
18
19
20
21
22
24
25
27
30
B
BB
D
FF
52D3

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 15

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

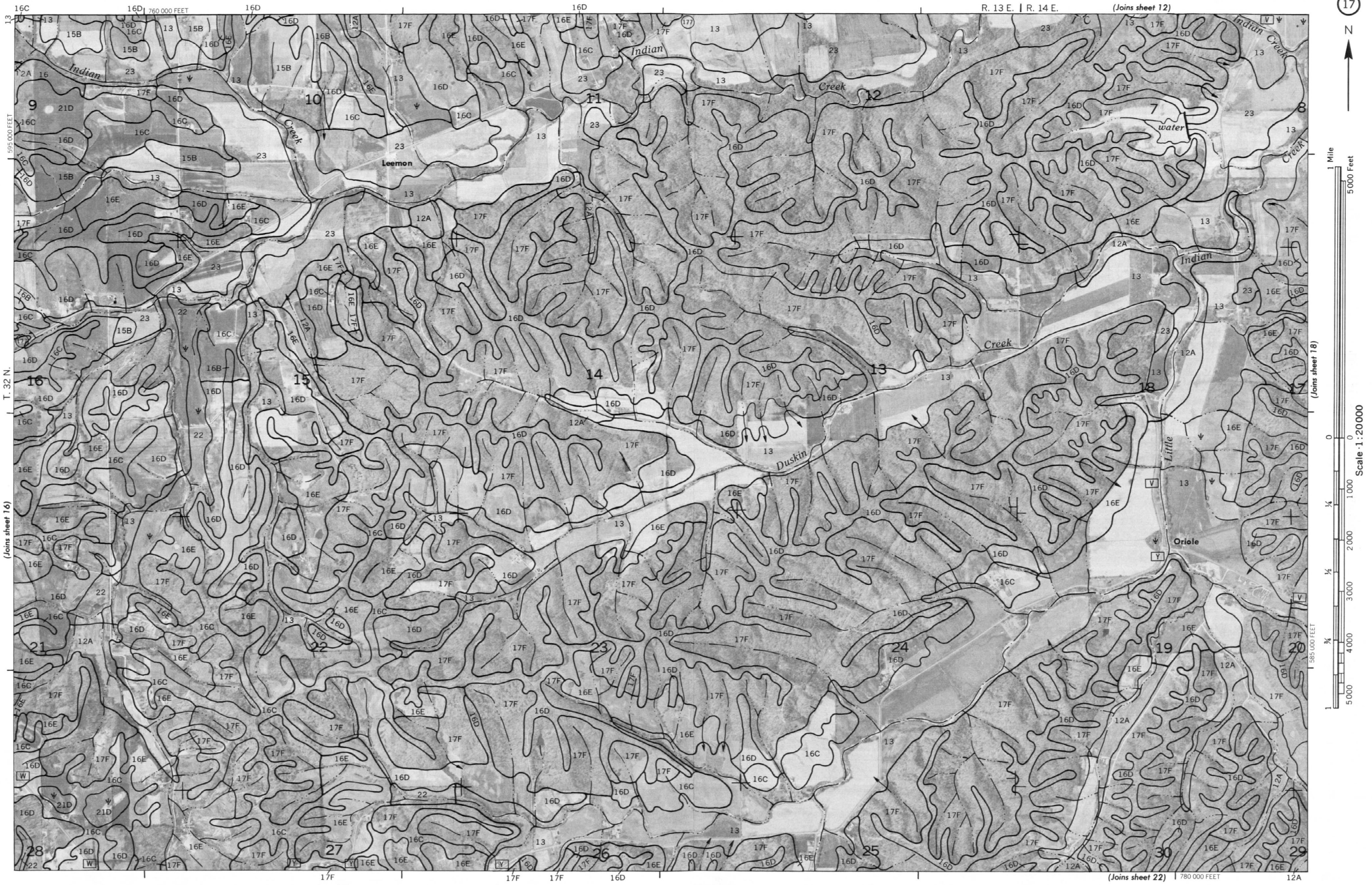
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 16


16
N
(Joins sheet 11)
R. 12 E.
R. 13 E.
755 000 FEET
595 000 FEET
T. 32 N.
(Joins sheet 15)
(Joins sheet 17)
(Joins sheet 21)
735 000 FEET
585 000 FEET
Brookside
Fruitland
Horrell Creek
Indian Cr.
Cane Creek
55
61
177
C
FF
W
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
8
9
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
13
12A
15B
16B
16C
16D
16E
17F
18D
18E
21D
22
23
w

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 16

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 17

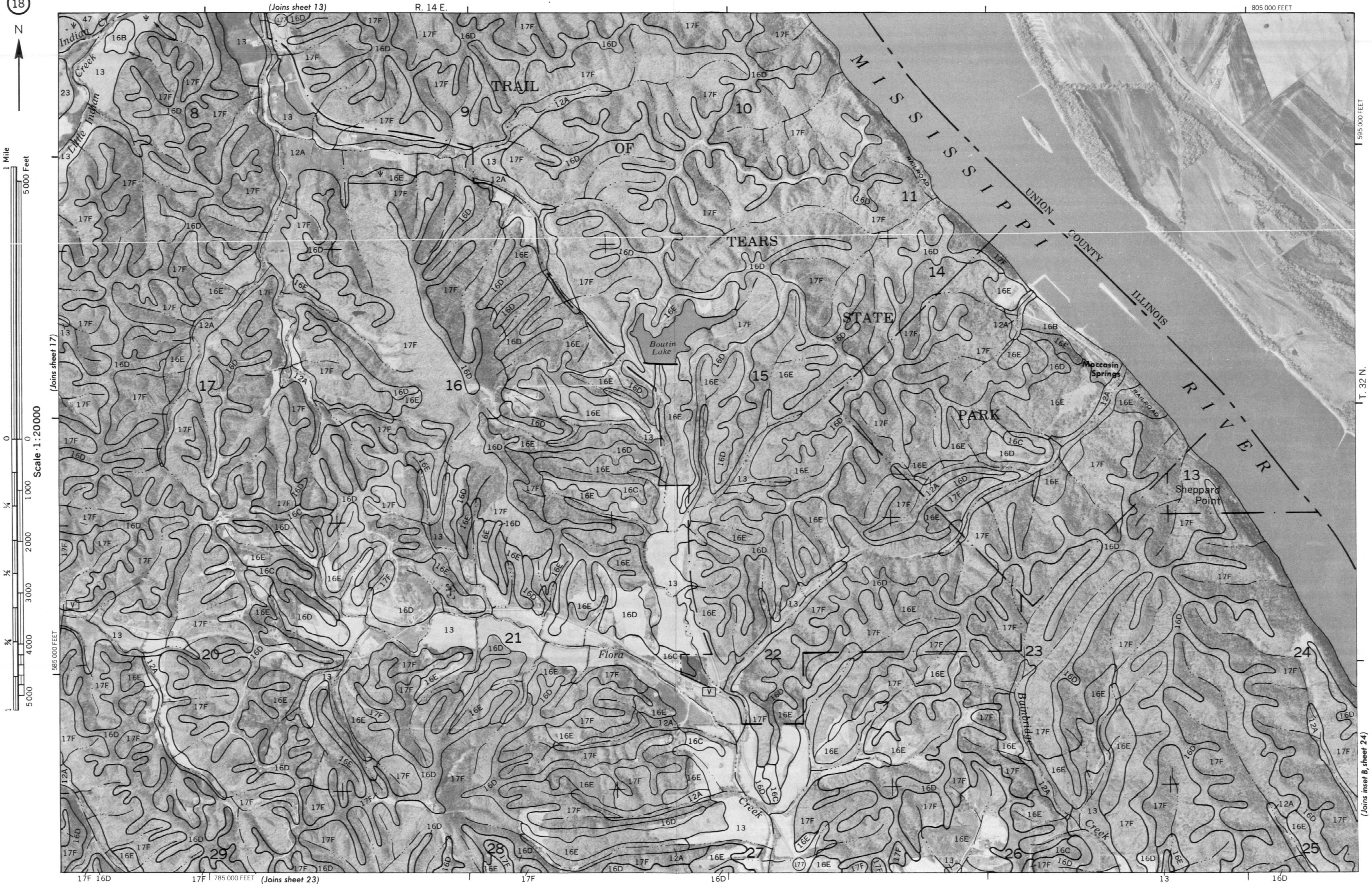


⑰
N
(Joins sheet 12)
(Joins sheet 16)
(Joins sheet 18)
(Joins sheet 22)
760 000 FEET
780 000 FEET
595 000 FEET
585 000 FEET
R. 13 E. | R. 14 E.
T. 32 N.
Indian Creek
Creek
Duskin
Little
water
Leemon
Oriole
177
V
Y
W
9
10
11
12
7
8
16
15
14
13
18
17
21
22
23
24
19
20
28
27
26
25
30
29
13
12A
15B
16B
16C
16D
16E
17F
21D
22
23
1 Mile
5000 Feet
0
¼
½
¾
1
1000
2000
3000
4000
5000
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 17

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

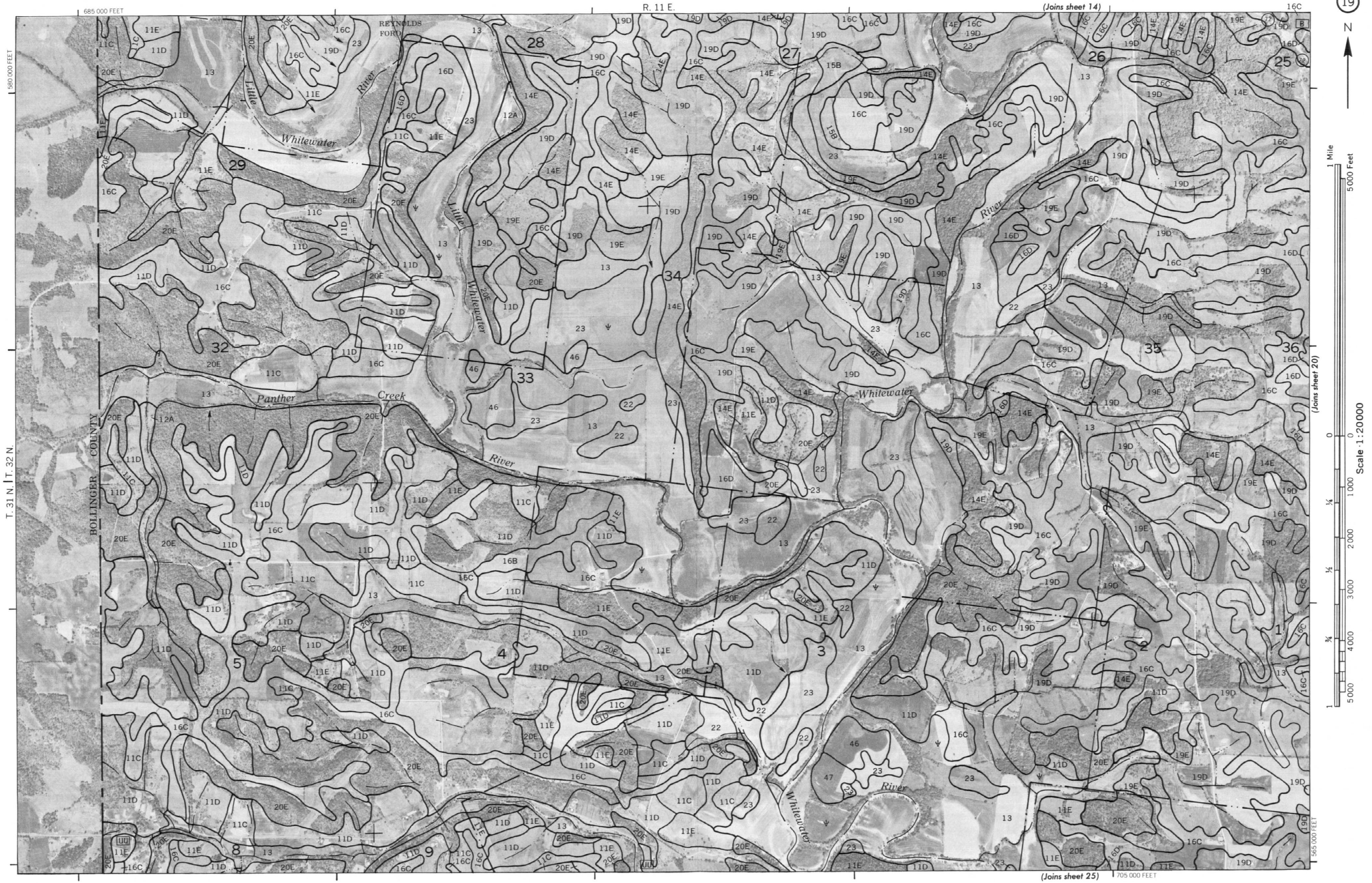
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 18


N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
(Joins sheet 13)
R. 14 E.
805 000 FEET
595 000 FEET
T. 32 N.
585 000 FEET
785 000 FEET
(Joins sheet 17)
(Joins sheet 23)
(Joins inset B, sheet 24)
TRAIL
OF
TEARS
STATE
PARK
MISSISSIPPI
RIVER
UNION COUNTY
ILLINOIS
RAILROAD
Boutin Lake
Moccasin Springs
Sheppard Point
Indian Creek
Little Indian
Flora
Creek
Bainbridge
Creek
177
8
9
10
11
14
15
16
17
13
20
21
22
23
24
25
26
27
28
29
12A
13
16B
16C
16D
16E
17F
23
47

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 18

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 19

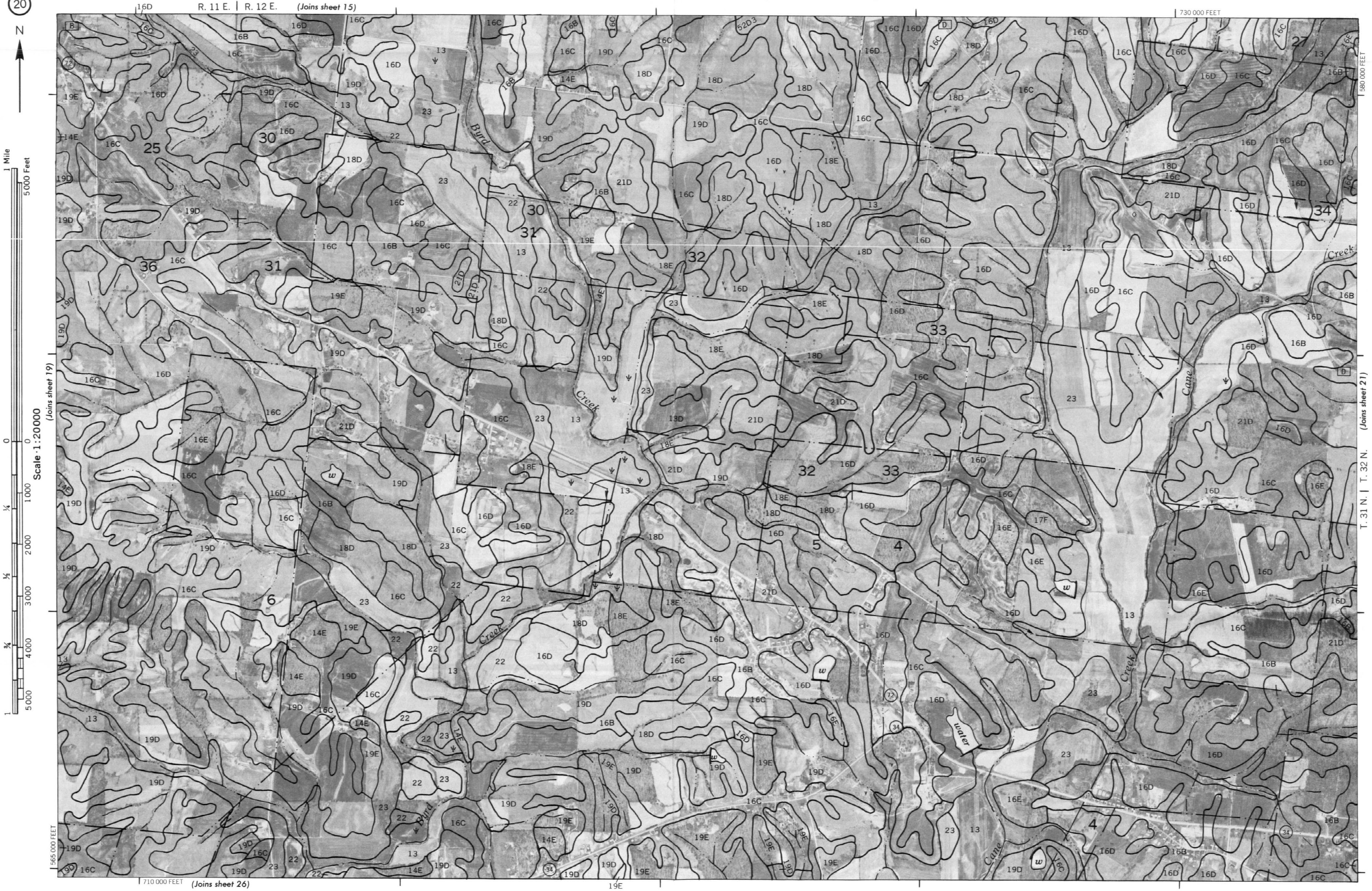

19
N
685 000 FEET
R. 11 E.
(Joins sheet 14)
16C
580 000 FEET
T. 31 N. | T. 32 N.
BOLLINGER COUNTY
(Joins sheet 20)
(Joins sheet 25)
705 000 FEET
565 000 FEET
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
0
¼
½
¾
1
Scale 1:20000
REYNOLDS FORD
Little Whitewater River
Whitewater
Whitewater River
Panther Creek River
28
27
26
25
29
32
33
34
35
36
1
2
3
4
5
8
9
B
UU

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 19

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

⑳

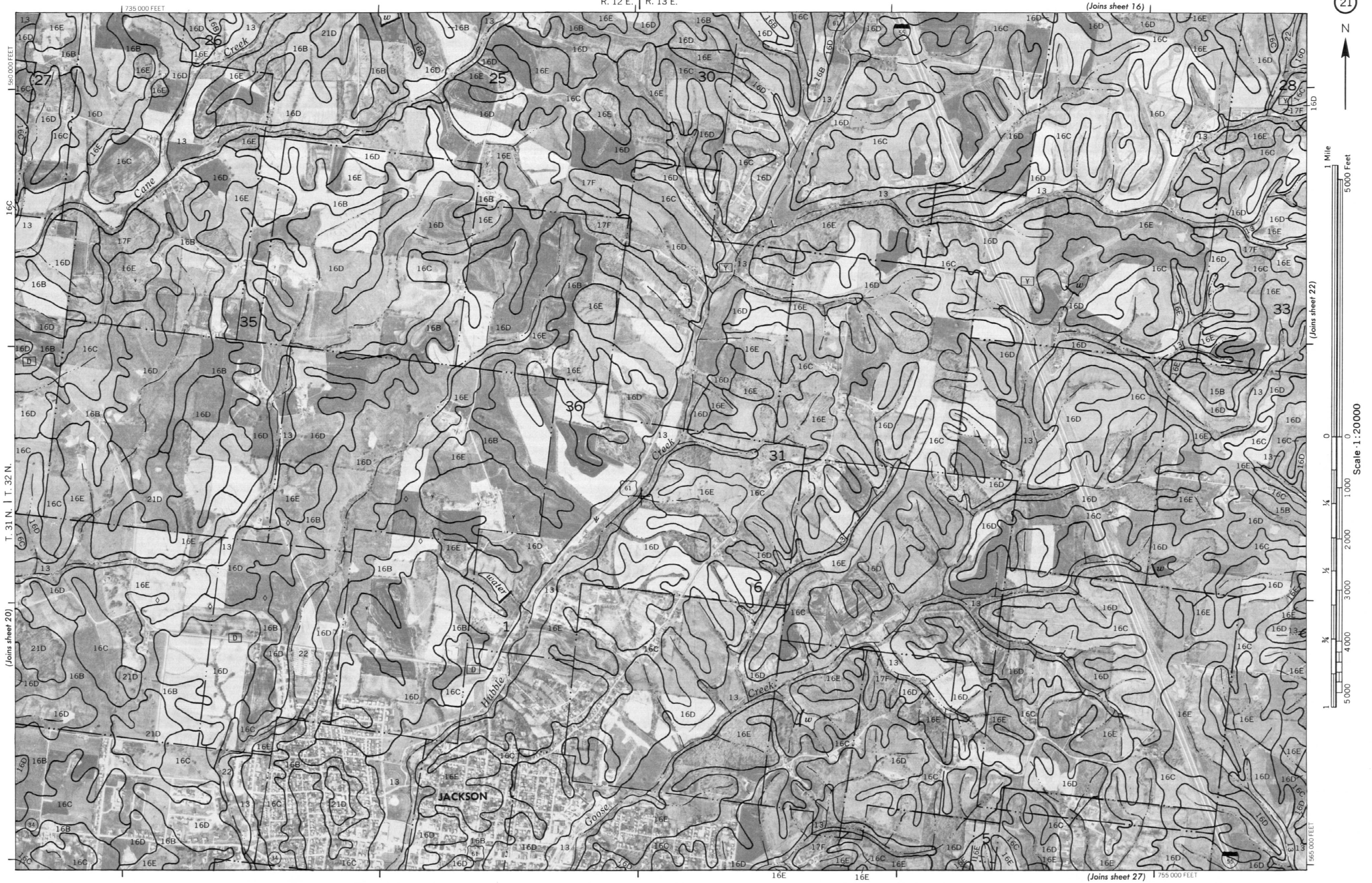
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 20


N
Scale 1:20000
1 Mile
5000 Feet
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
R. 11 E.
R. 12 E.
(Joins sheet 15)
(Joins sheet 19)
(Joins sheet 21)
(Joins sheet 26)
730 000 FEET
580 000 FEET
565 000 FEET
710 000 FEET
T. 31 N.
T. 32 N.
Byrd
Creek
Cane
Creek
water
w
25
30
31
36
32
33
34
27
5
4
6
72
34
B
D
13
14E
16B
16C
16D
16E
17F
18D
18E
19D
19E
21D
22
23
52D3

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 20

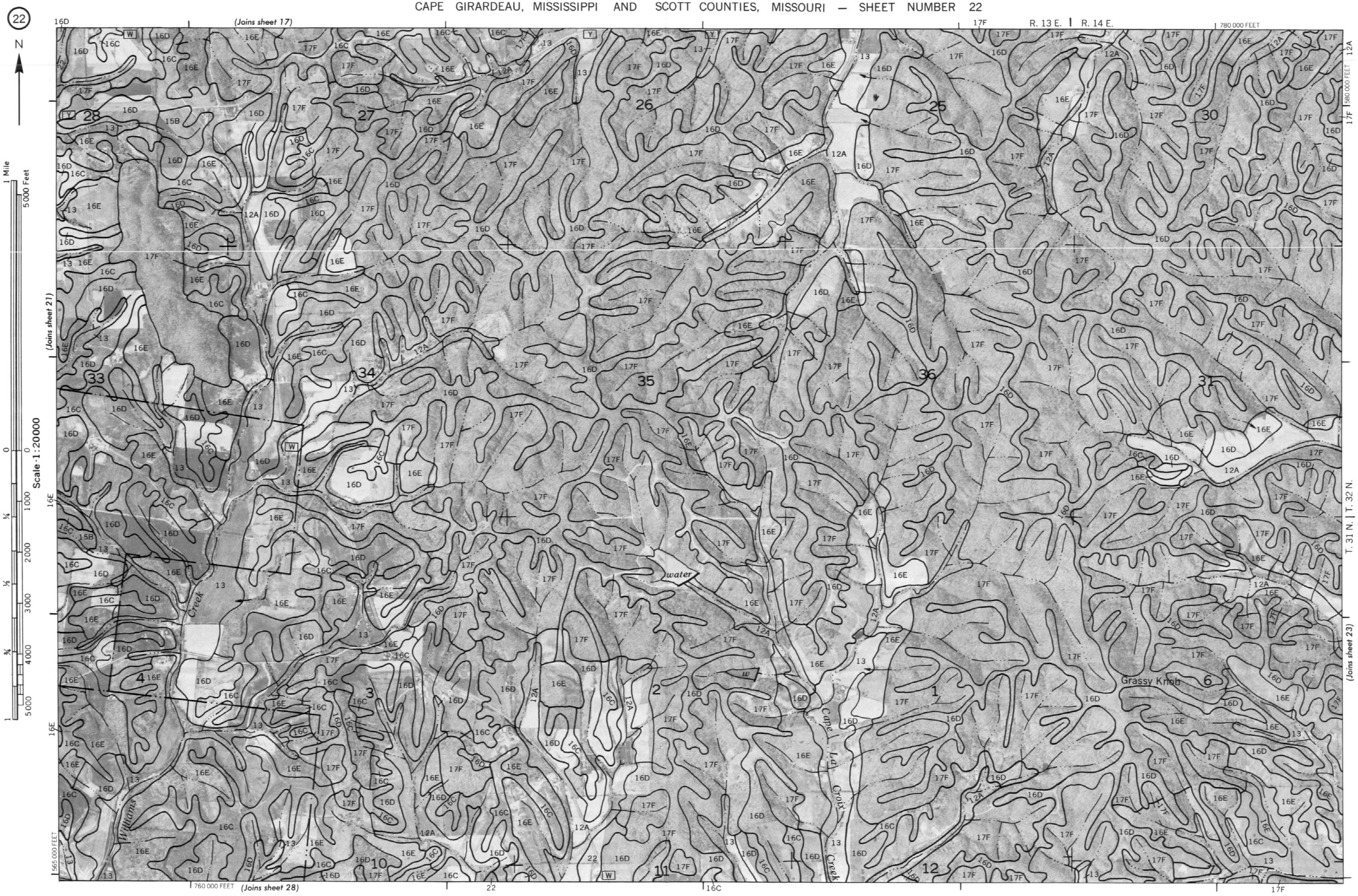
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 21



21
N
735 000 FEET
560 000 FEET
R. 12 E. | R. 13 E.
(Joins sheet 16)
(Joins sheet 22)
(Joins sheet 20)
(Joins sheet 27)
755 000 FEET
565 000 FEET
T. 31 N. | T. 32 N.
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
JACKSON
Cane Creek
Creek
Hubble Creek
Goose Creek
water
13
16B
16C
16D
16E
17F
21D
22
15B
19D
w
61
55
34
25
26
27
28
30
31
33
35
36
1
5
6

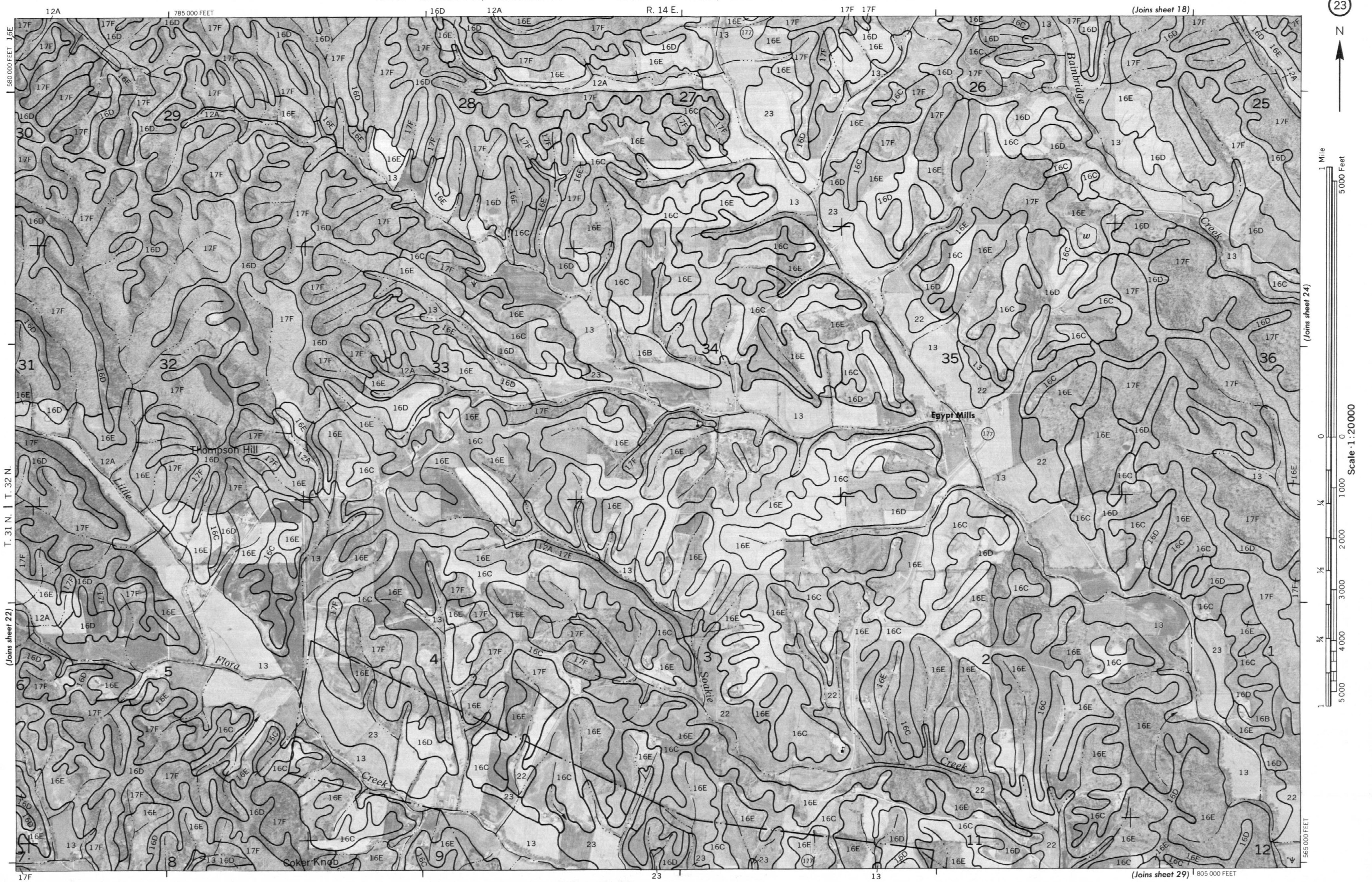
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 21

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.


22
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
(Joins sheet 17)
(Joins sheet 21)
(Joins sheet 23)
(Joins sheet 28)
R. 13 E.
R. 14 E.
T. 31 N.
T. 32 N.
780 000 FEET
580 000 FEET
760 000 FEET
565 000 FEET
26
25
27
28
30
33
34
35
36
31
4
3
2
1
6
10
11
12
Grassy Knob
water
Williams
Creek
Cape
La
Croix
Creek

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 23

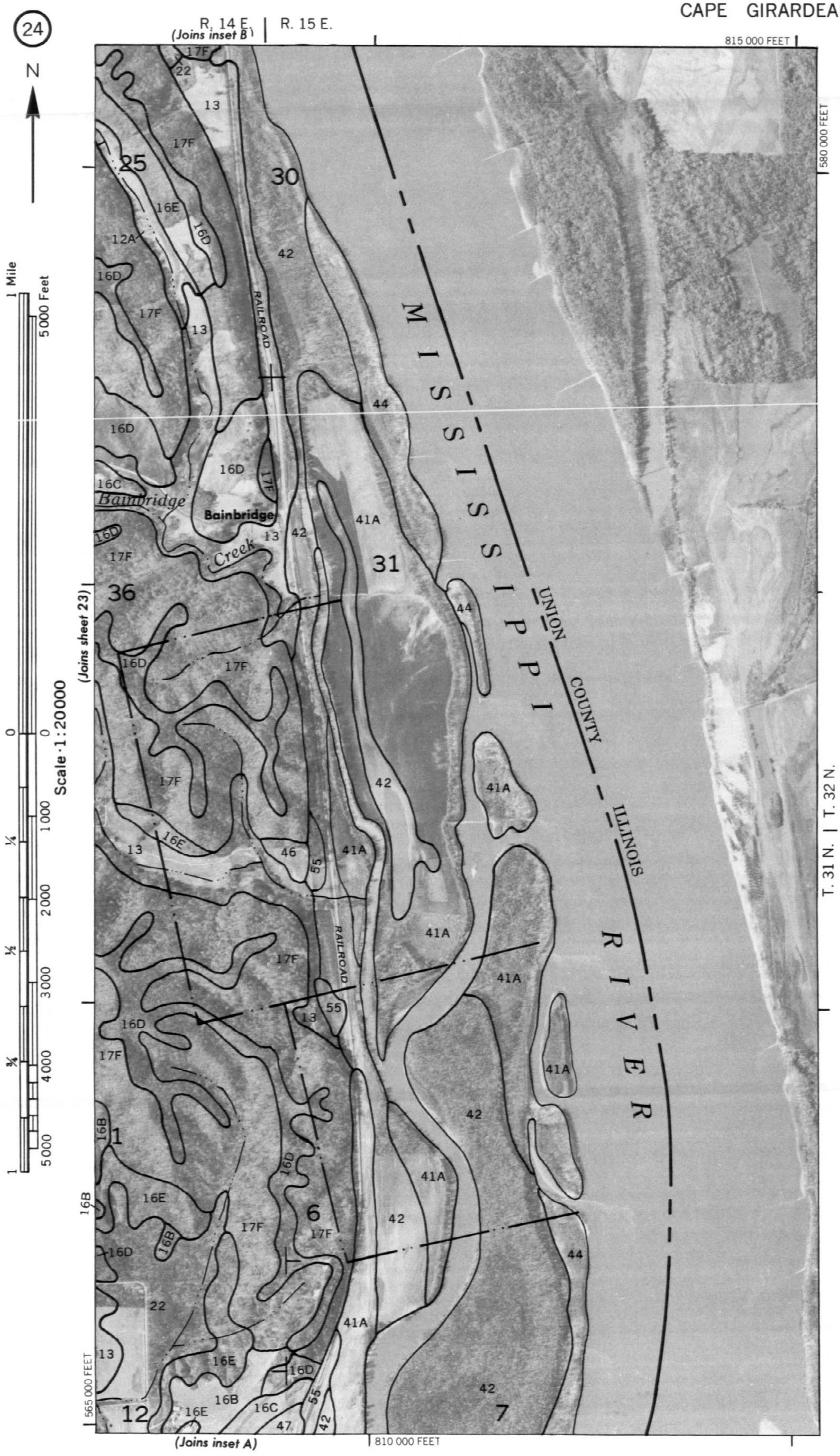


23
N
(Joins sheet 18)
(Joins sheet 24)
(Joins sheet 29)
(Joins sheet 22)
785 000 FEET
805 000 FEET
580 000 FEET
565 000 FEET
R. 14 E.
T. 31 N.
T. 32 N.
Scale 1:20000
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
Thompson Hill
Egypt Mills
Coker Knob
Little
Flora
Creek
Sachie
Bainbridge
177
w
25
26
27
28
29
30
31
32
33
34
35
36
1
2
3
4
5
6
7
8
9
11
12
12A
13
16B
16C
16D
16E
17F
22
23

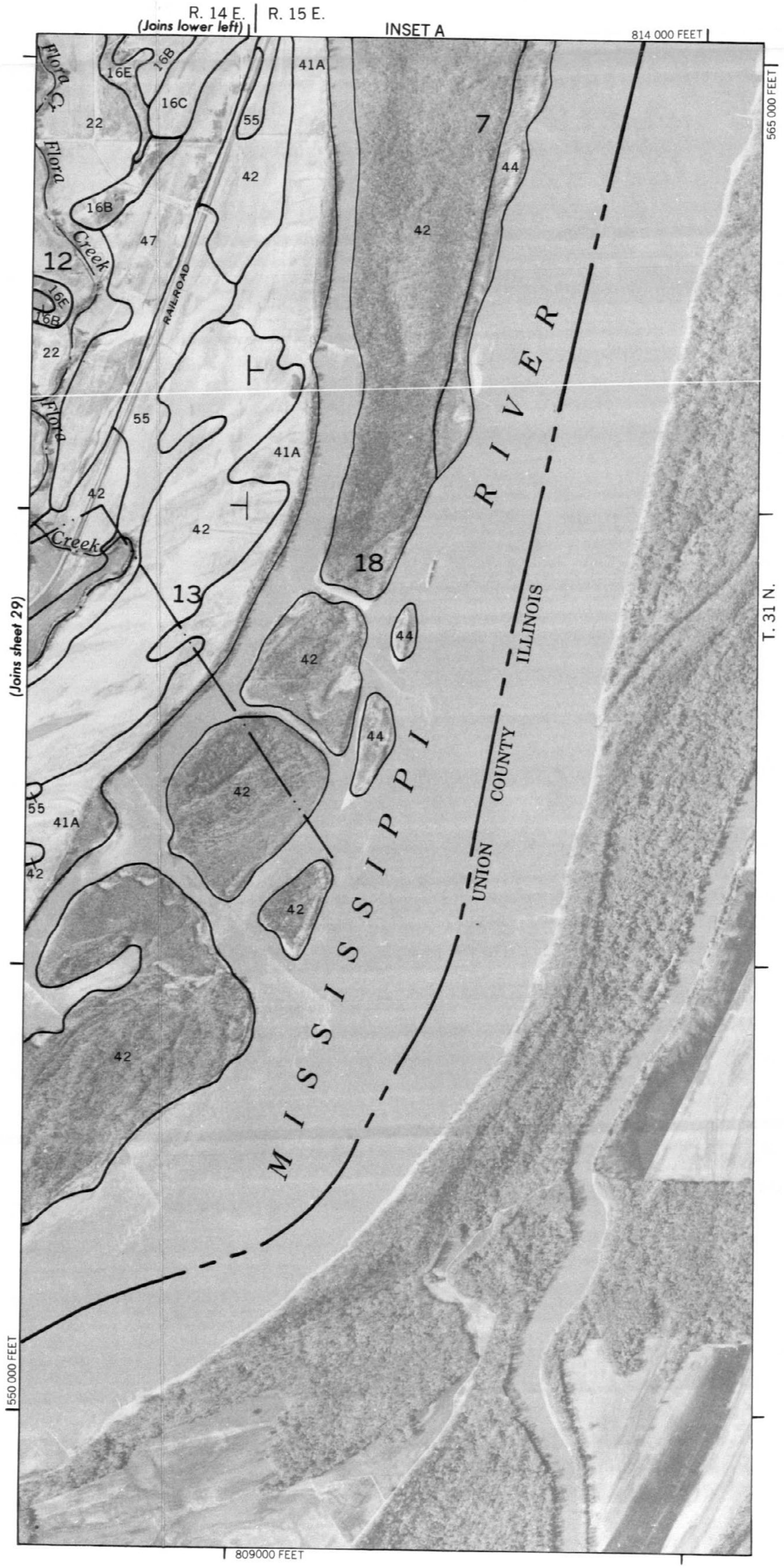
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 23

This map is compiled on 1974 and 1975 aerial photography by the U.S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

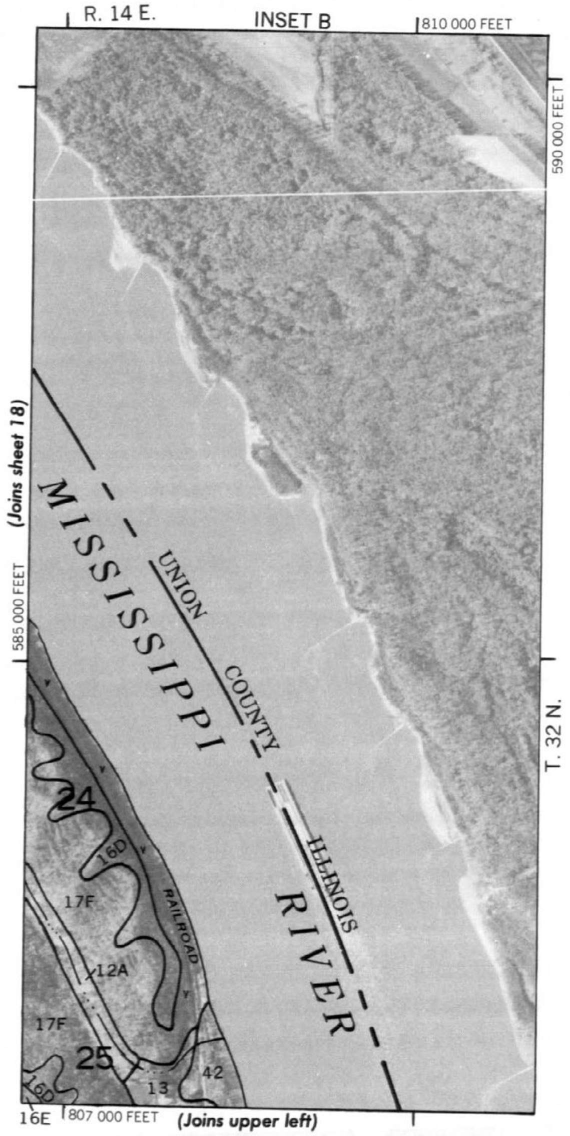
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 24



(24)
N
R. 14 E. (Joins inset B)
R. 15 E.
815 000 FEET
580 000 FEET
565 000 FEET
810 000 FEET
(Joins inset A)
(Joins sheet 23)
T. 32 N.
T. 31 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
MISSISSIPPI RIVER
UNION COUNTY
ILLINOIS
Bainbridge
Bainbridge Creek
RAILROAD
1
6
7
12
12A
13
16B
16C
16D
16E
17F
22
25
30
31
36
41A
42
44
46
47
55



INSET A
R. 14 E. (Joins lower left)
R. 15 E.
814 000 FEET
565 000 FEET
550 000 FEET
809000 FEET
(Joins sheet 29)
T. 31 N.
MISSISSIPPI RIVER
UNION COUNTY
ILLINOIS
Flora Creek
RAILROAD
7
12
13
16B
16C
16E
18
22
41A
42
44
47
55



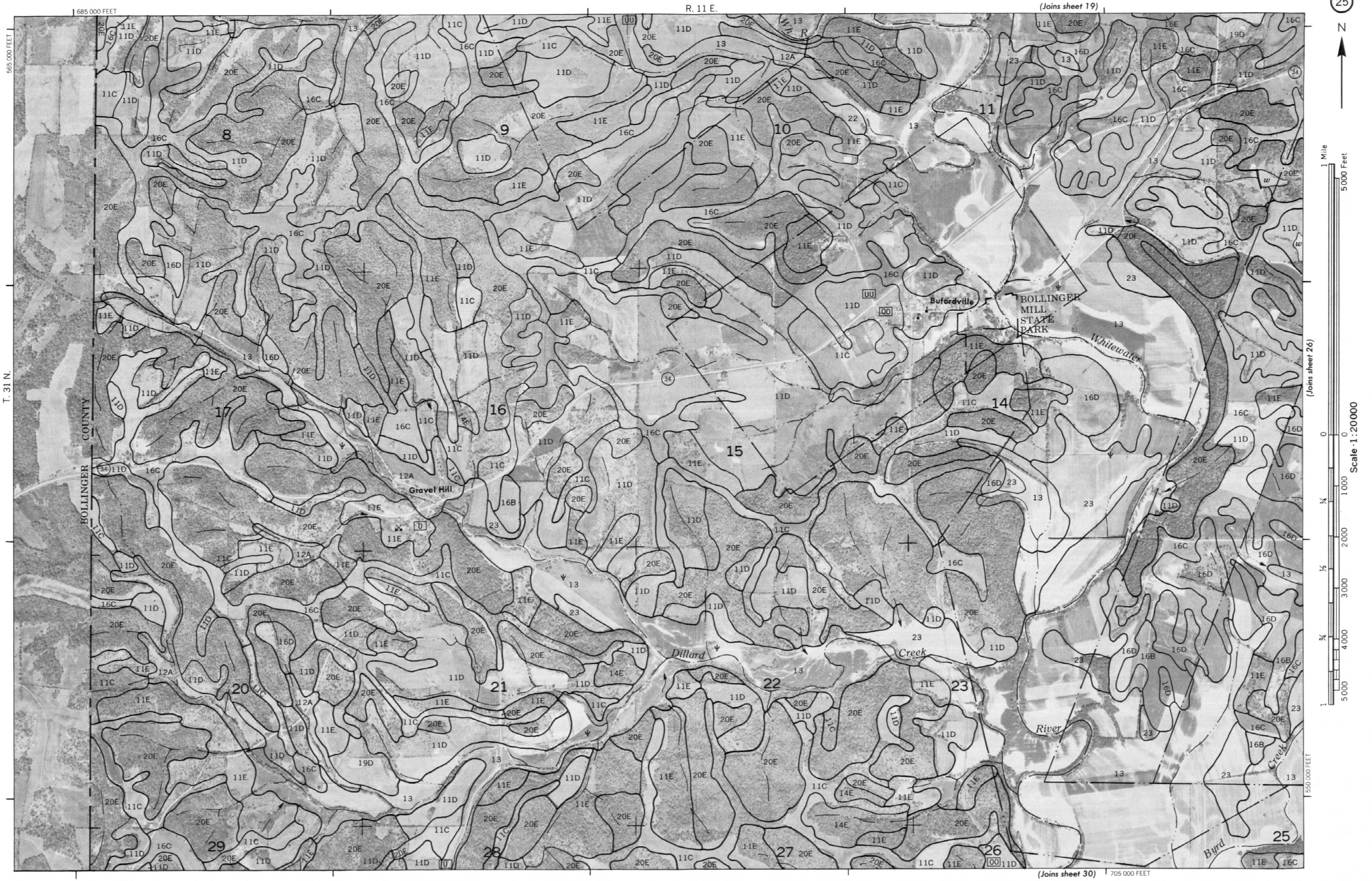
INSET B
R. 14 E.
810 000 FEET
590 000 FEET
585 000 FEET
807 000 FEET
(Joins sheet 18)
(Joins upper left)
T. 32 N.
MISSISSIPPI RIVER
UNION COUNTY
ILLINOIS
RAILROAD
12A
13
16D
16E
17F
24
25
42

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 24

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 25

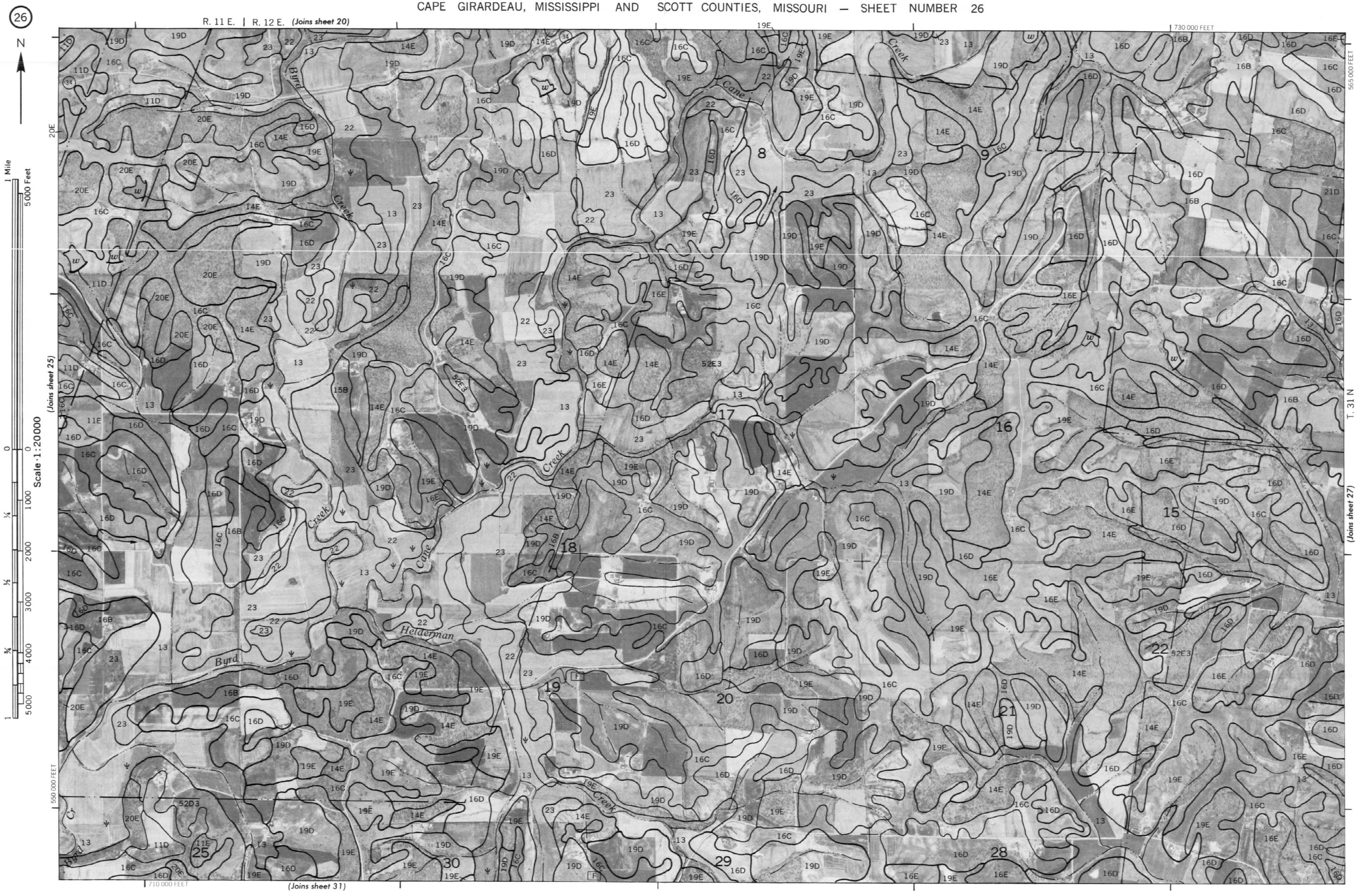
(25)


685 000 FEET
565 000 FEET
R. 11 E.
(Joins sheet 19)
N
T. 31 N.
BOLLINGER COUNTY
Gravel Hill
Bufordville
BOLLINGER MILL STATE PARK
Whitewater
River
Wh R
Dillard
Creek
Byrd
Creek
(Joins sheet 26)
550 000 FEET
(Joins sheet 30)
705 000 FEET
8
9
10
11
14
15
16
17
20
21
22
23
25
26
27
28
29
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 25

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 26



26
N
R. 11 E.
R. 12 E.
(Joins sheet 20)
(Joins sheet 25)
(Joins sheet 27)
(Joins sheet 31)
T. 31 N
730 000 FEET
565 000 FEET
710 000 FEET
550 000 FEET
20E
19E
Scale 1:20000
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
Byrd Creek
Cane Creek
Helderman
Creek
Cr
8
9
15
16
17
18
19
20
21
22
25
28
29
30
34
F
w
13
14E
16B
16C
16D
16E
19D
19E
11D
11E
20E
21D
22
23
52D3
52E3

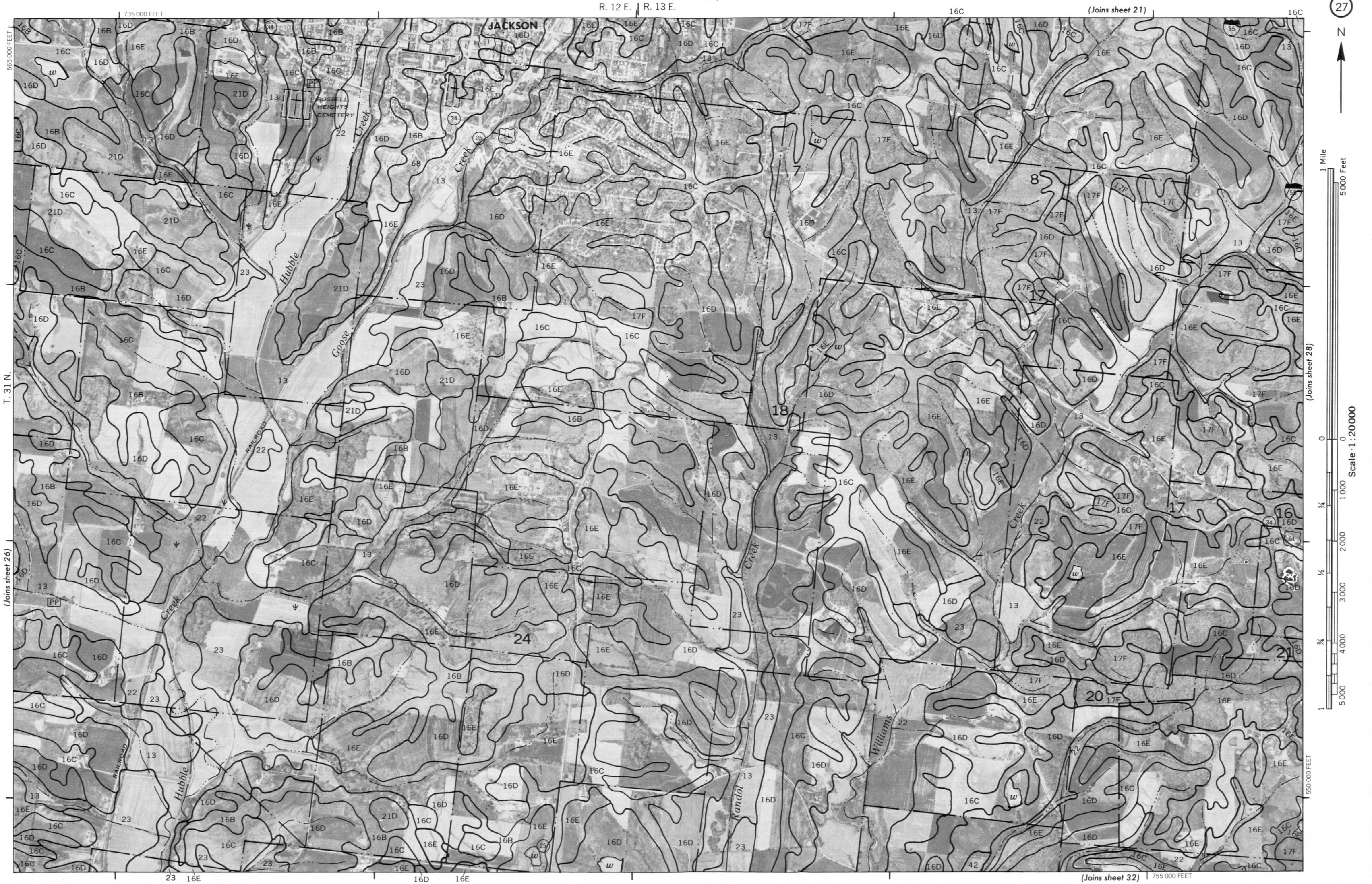
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 26

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 27

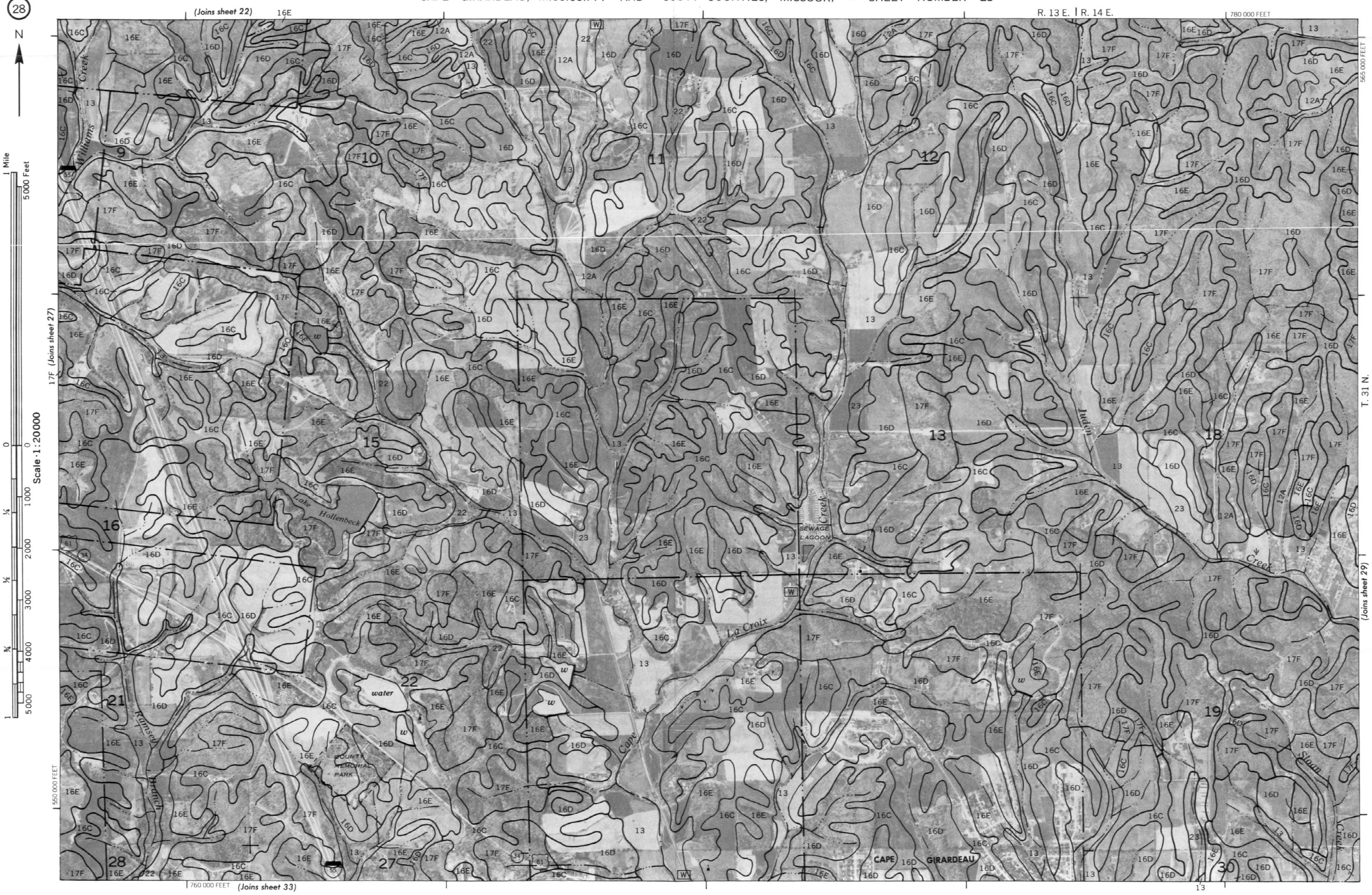
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 27

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.


27
R. 12 E.
R. 13 E.
T. 31 N.
735 000 FEET
755 000 FEET
565 000 FEET
550 000 FEET
(Joins sheet 21)
(Joins sheet 26)
(Joins sheet 28)
(Joins sheet 32)
JACKSON
RUSSELL HEIGHTS CEMETERY
Hubble Creek
Goose Creek
Randol Creek
Williams Creek
RAILROAD
7
8
16
17
18
20
21
24
N
1 Mile
0
¼
½
¾
1
5000 Feet
0
1000
2000
3000
4000
5000
Scale 1:20000

28

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 28


N
(Joins sheet 22)
(Joins sheet 27)
(Joins sheet 29)
(Joins sheet 33)
R. 13 E. | R. 14 E.
T. 31 N.
780 000 FEET
565 000 FEET
760 000 FEET
550 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
Williams Creek
Lake Hollenbeck
Ramsey Branch
Cape La Croix Creek
Juden Creek
Sloan Creek
SEWAGE LAGOON
COUNTY MEMORIAL PARK
CAPE GIRARDEAU
water
w
9
10
11
12
7
15
13
18
16
21
22
19
28
27
30
55
61
34
W
12A
13
16C
16D
16E
17F
22
23

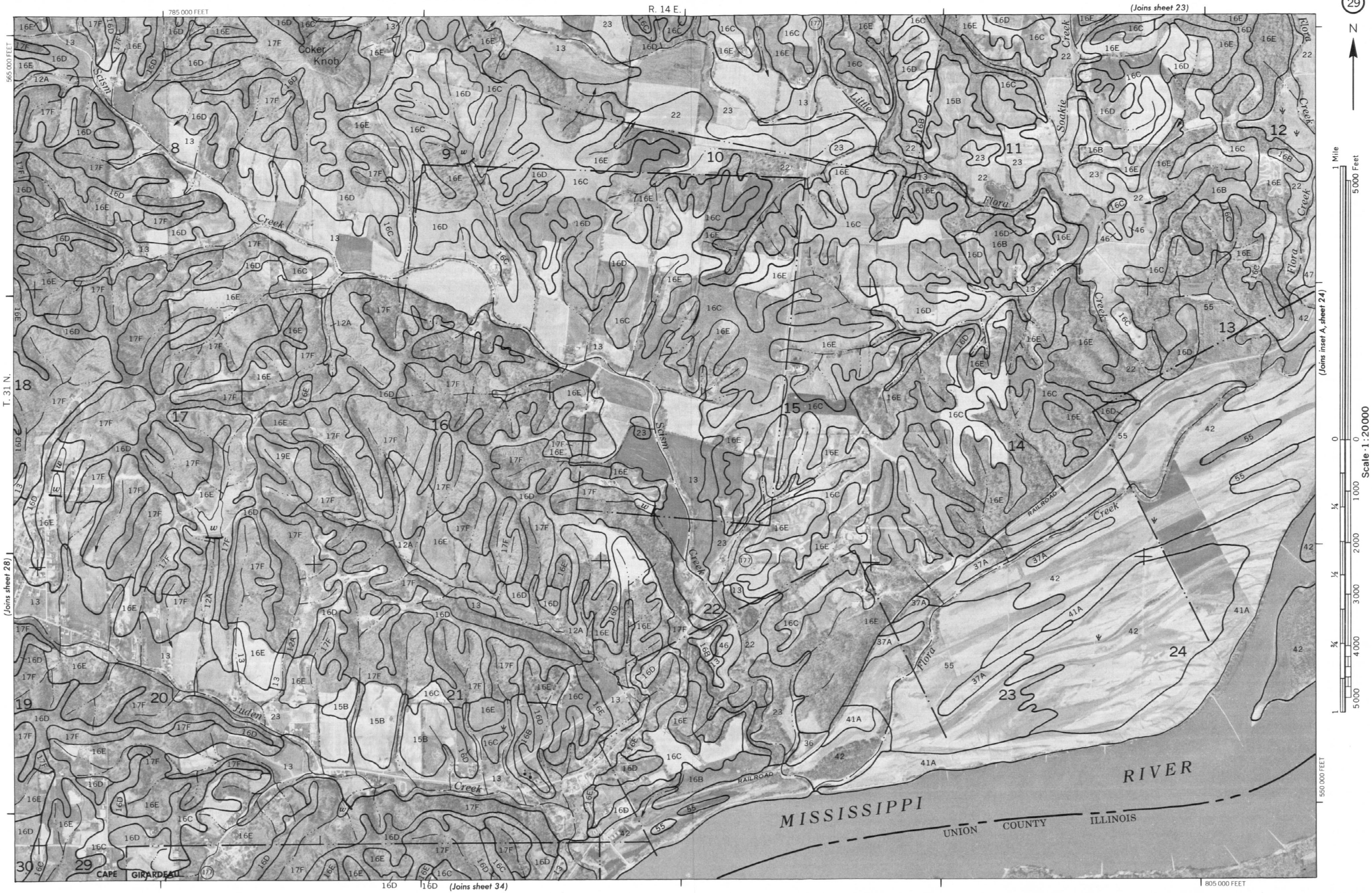
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 28

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 29

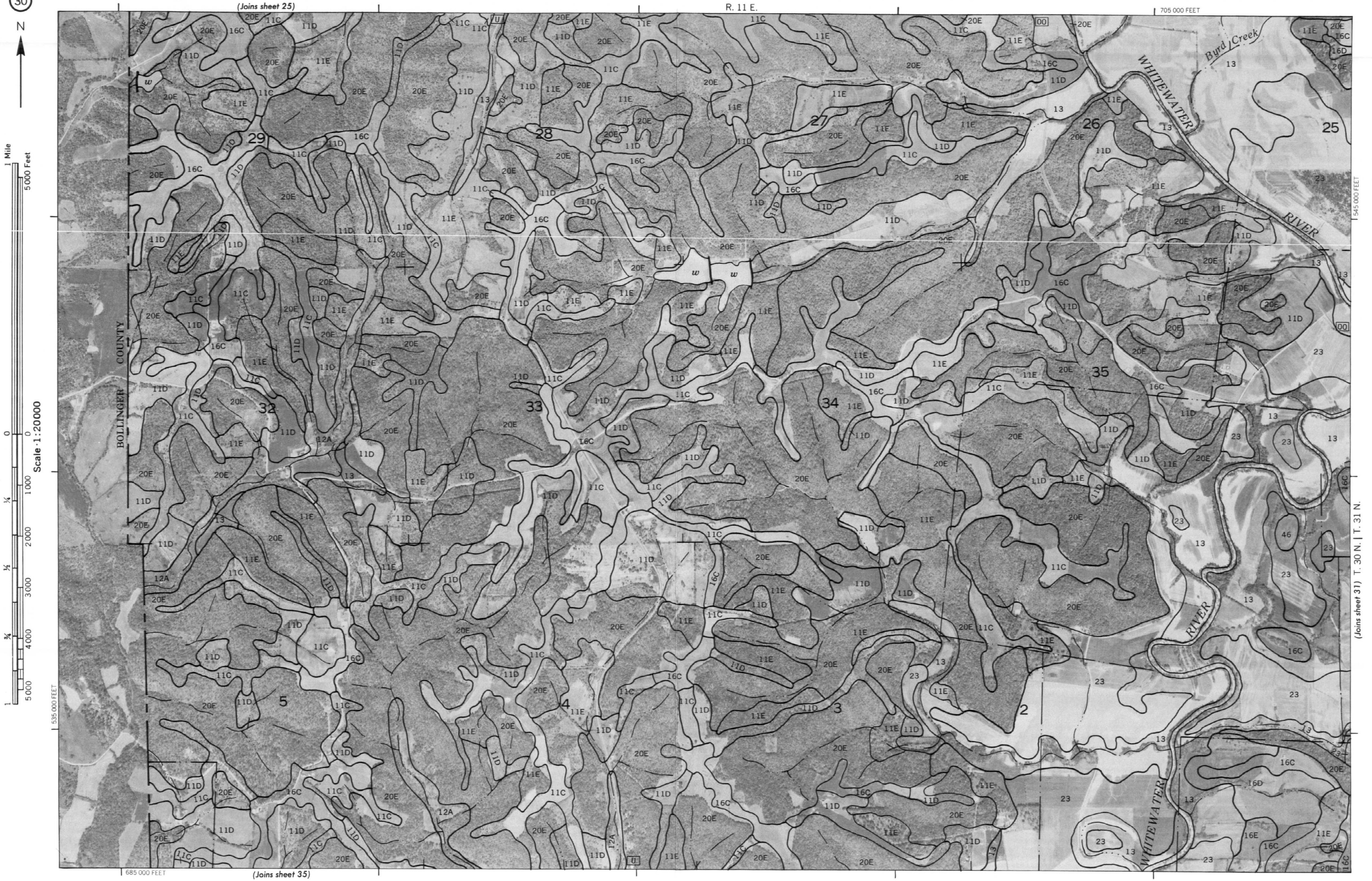
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 29

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



(29)
785 000 FEET
R. 14 E.
(Joins sheet 23)
565 000 FEET
T. 31 N.
(Joins sheet 28)
(Joins inset A, sheet 24)
(Joins sheet 34)
550 000 FEET
805 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000
0
1/4
1/2
3/4
1
0
1000
2000
3000
4000
5000
Coker Knob
Scism Creek
Little Flora Creek
Soakie Creek
Flora Creek
Juden Creek
Creek
RAILROAD
MISSISSIPPI RIVER
UNION COUNTY ILLINOIS
CAPE GIRARDEAU
177
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
29
30
12A
13
15B
16B
16C
16D
16E
17F
19E
22
23
36
37A
41A
42
46
47
55
w

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 30

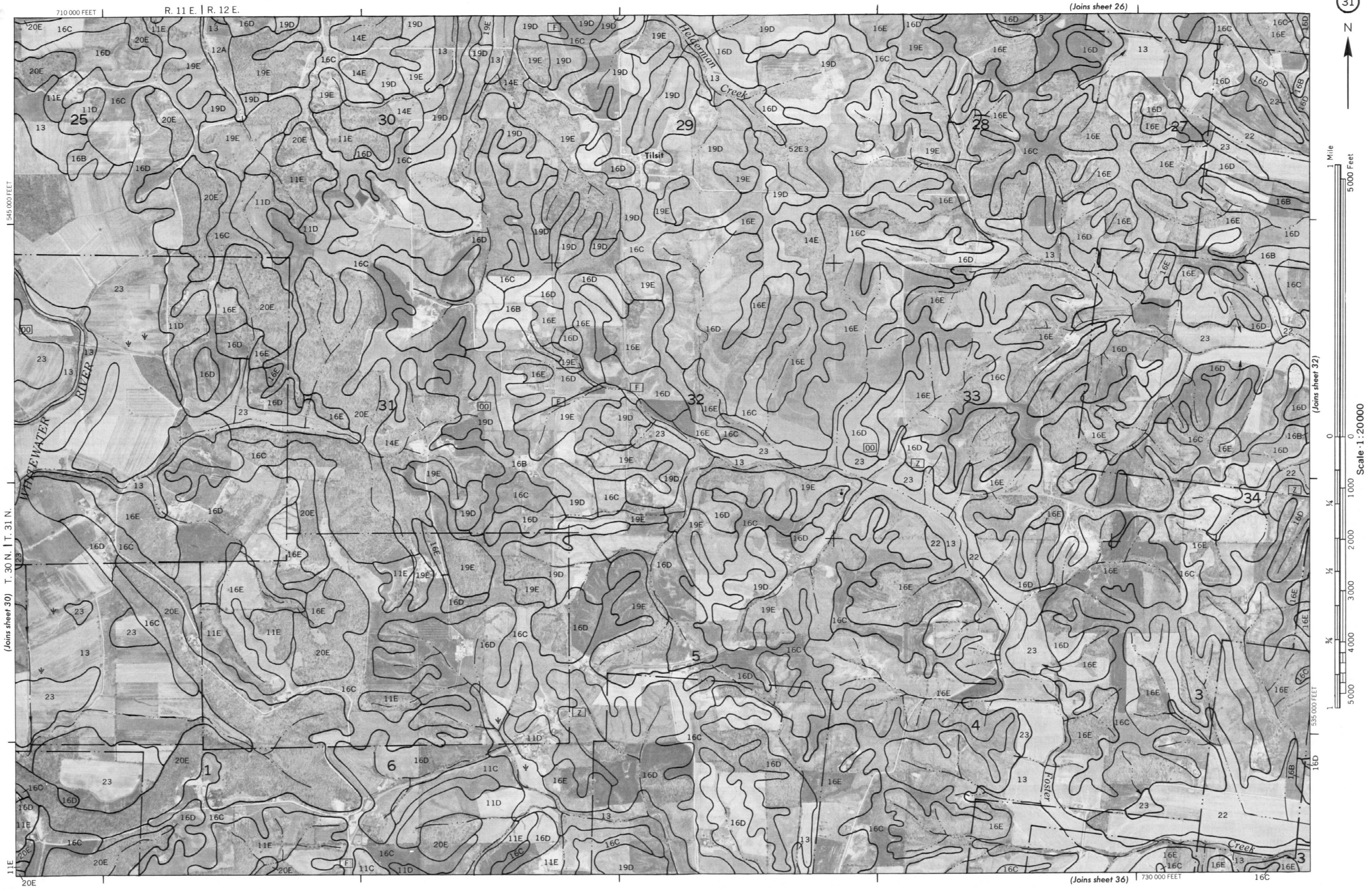


30
N
(Joins sheet 25)
R. 11 E.
705 000 FEET
545 000 FEET
535 000 FEET
685 000 FEET
(Joins sheet 35)
(Joins sheet 31) T. 30 N. | T. 31 N.
BOLLINGER COUNTY
WHITEWATER RIVER
Byrd Creek
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
25
26
27
28
29
32
33
34
35
2
3
4
5
w
U
00

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 30

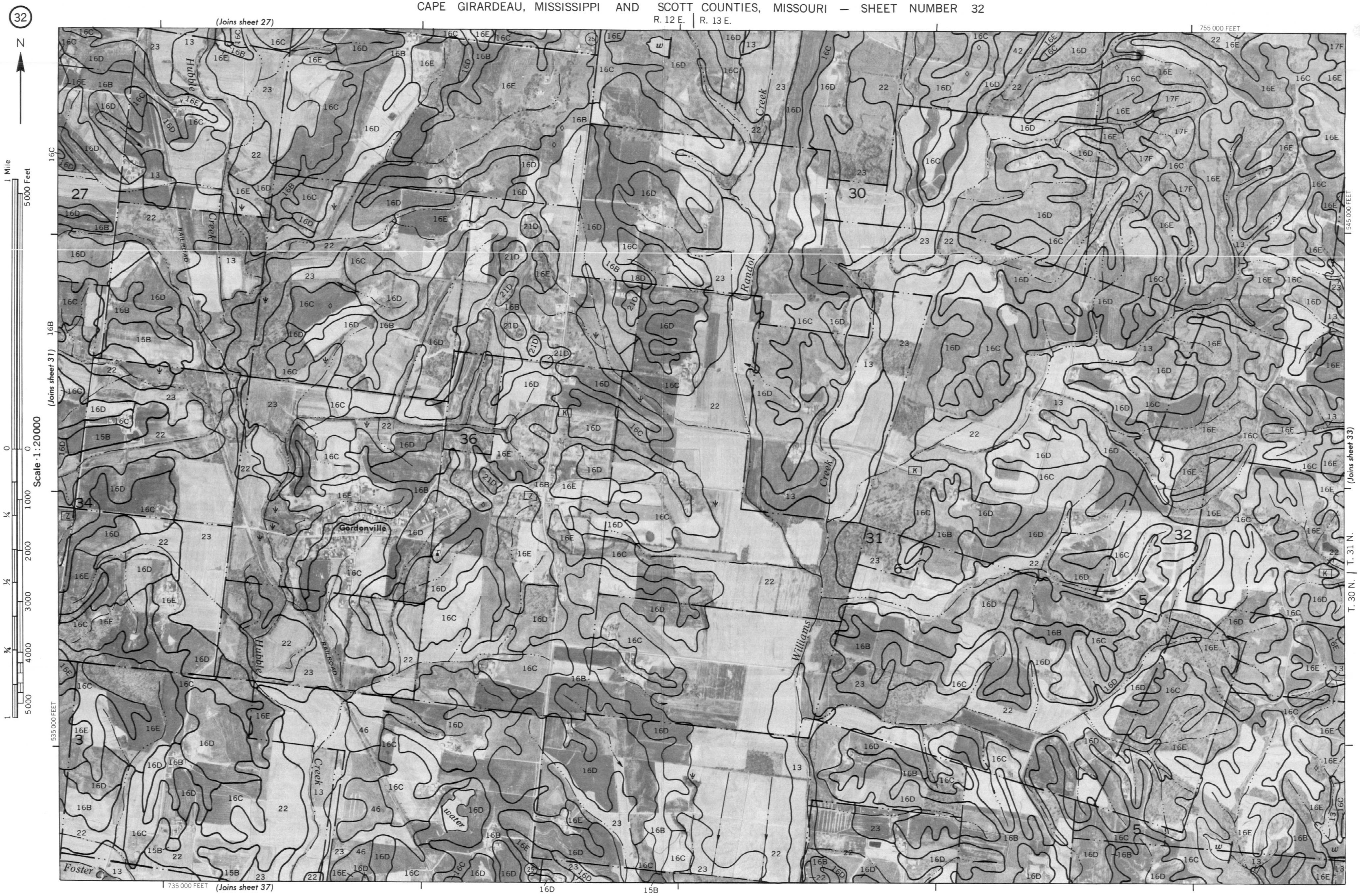
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 31


710 000 FEET
R. 11 E. | R. 12 E.
(Joins sheet 26)
N
545 000 FEET
T. 31 N. | T. 30 N.
(Joins sheet 30)
(Joins sheet 32)
(Joins sheet 36)
730 000 FEET
535 000 FEET
Helderman Creek
Tilsit
WHITEWATER RIVER
Foster Creek
25
30
29
28
27
31
32
33
34
1
6
5
4
3
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 31

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 32

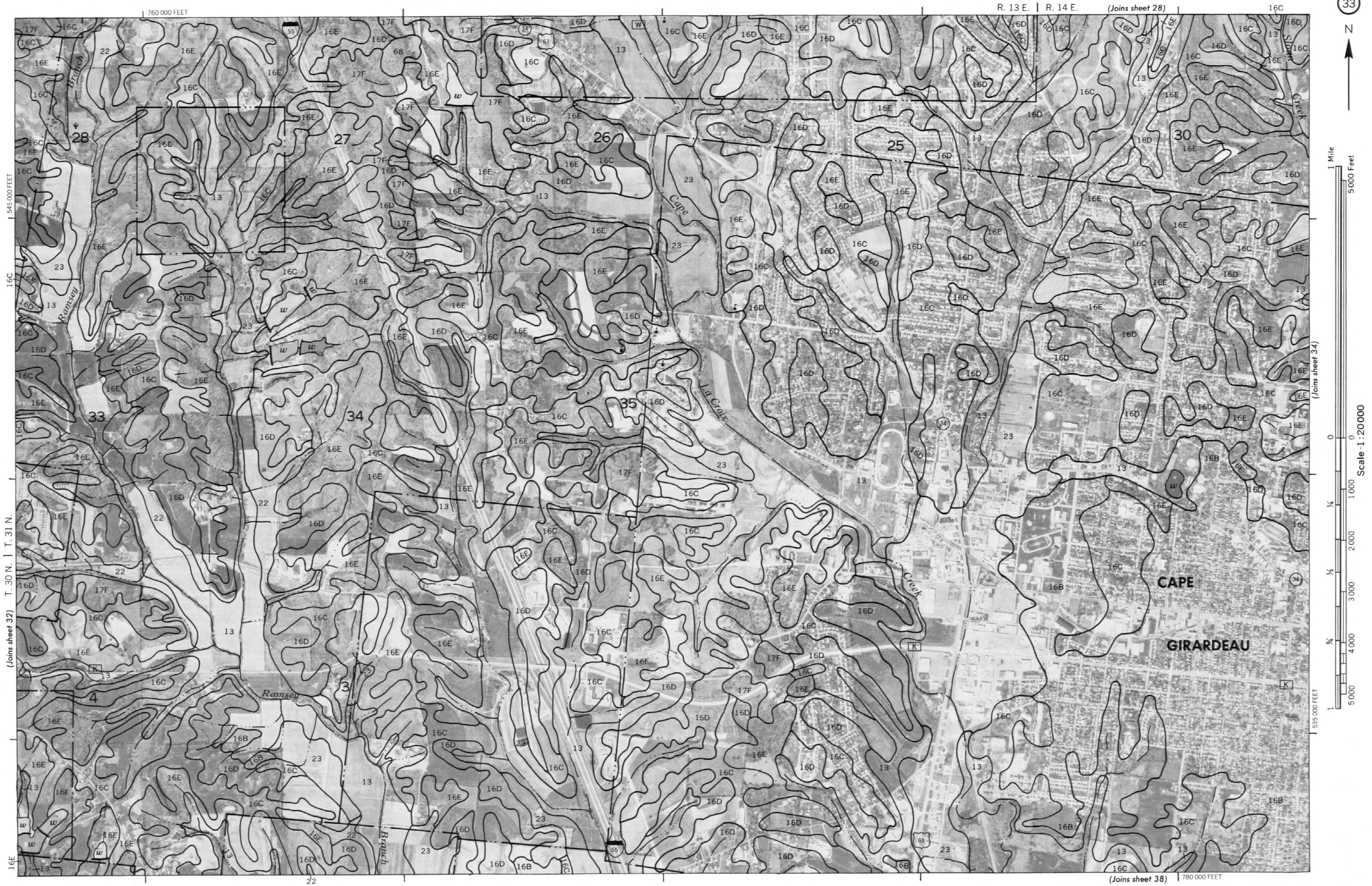

32
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
(Joins sheet 27)
R. 12 E.
R. 13 E.
755 000 FEET
545 000 FEET
(Joins sheet 31)
(Joins sheet 33)
(Joins sheet 37)
735 000 FEET
535 000 FEET
T. 30 N.
T. 31 N.
Hubble Creek
Randol Creek
Williams Creek
Foster Cr.
Gordonville
RAILROAD
water
27
30
36
31
34
32
3
5
13
22
23
42
46
15B
16B
16C
16D
16E
17F
18D
21D

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 32

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 33

(33)

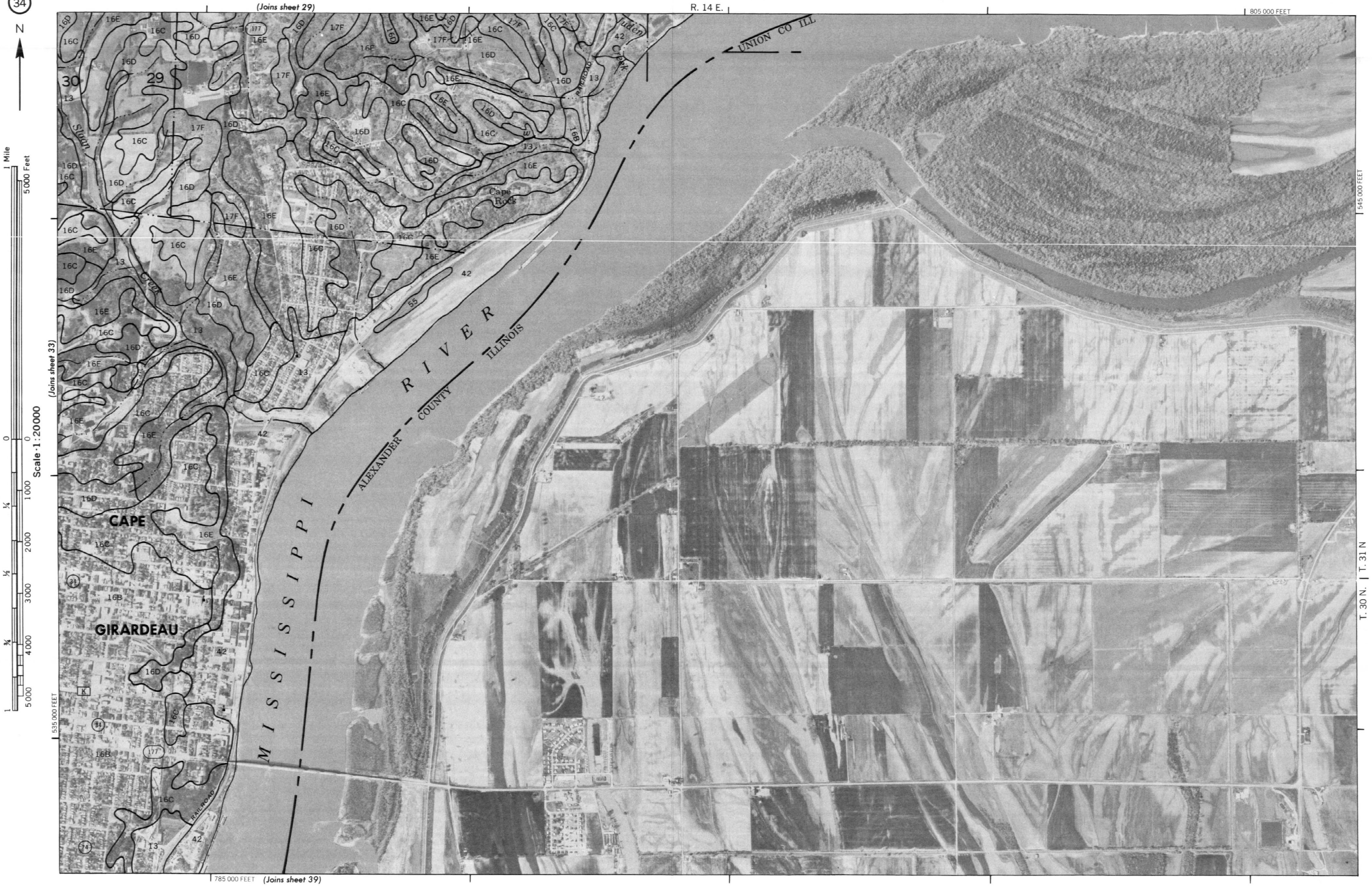


760 000 FEET
R. 13 E. | R. 14 E.
(Joins sheet 28)
N
545 000 FEET
(Joins sheet 34)
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
535 000 FEET
780 000 FEET
(Joins sheet 38)
(Joins sheet 32)
T. 30 N. | T. 31 N.
CAPE
GIRARDEAU
Cape La Croix Creek
Ramsey Branch
Ramsey
Branch
Creek
55
61
34
K
W
25
26
27
28
30
33
34
35
3
4

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 33

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

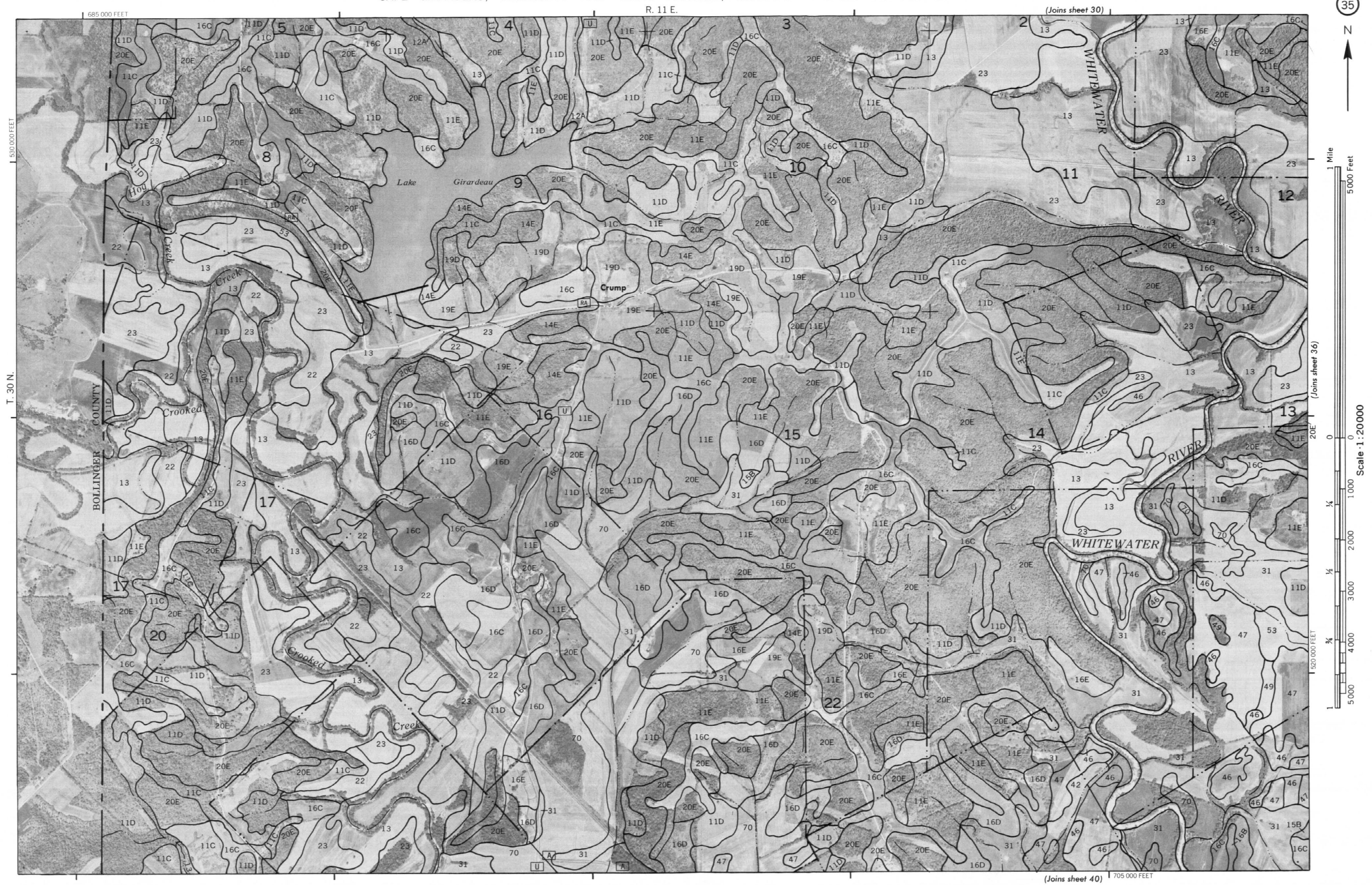
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 34


N
(Joins sheet 29)
R. 14 E.
805 000 FEET
545 000 FEET
(Joins sheet 33)
(Joins sheet 39)
785 000 FEET
535 000 FEET
T. 31 N
T. 30 N.
1 Mile
5000 Feet
Scale 1:20000
0
1/4
1/2
3/4
1
1000
2000
3000
4000
5 000
MISSISSIPPI RIVER
UNION CO ILL
ALEXANDER COUNTY
ILLINOIS
CAPE
GIRARDEAU
Cape Rock
Juden Creek
Sloan Creek
Creek
RAILROAD
30
29
177
74
34
K
13
16B
16C
16D
16E
17F
42
55
w

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 34

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 35

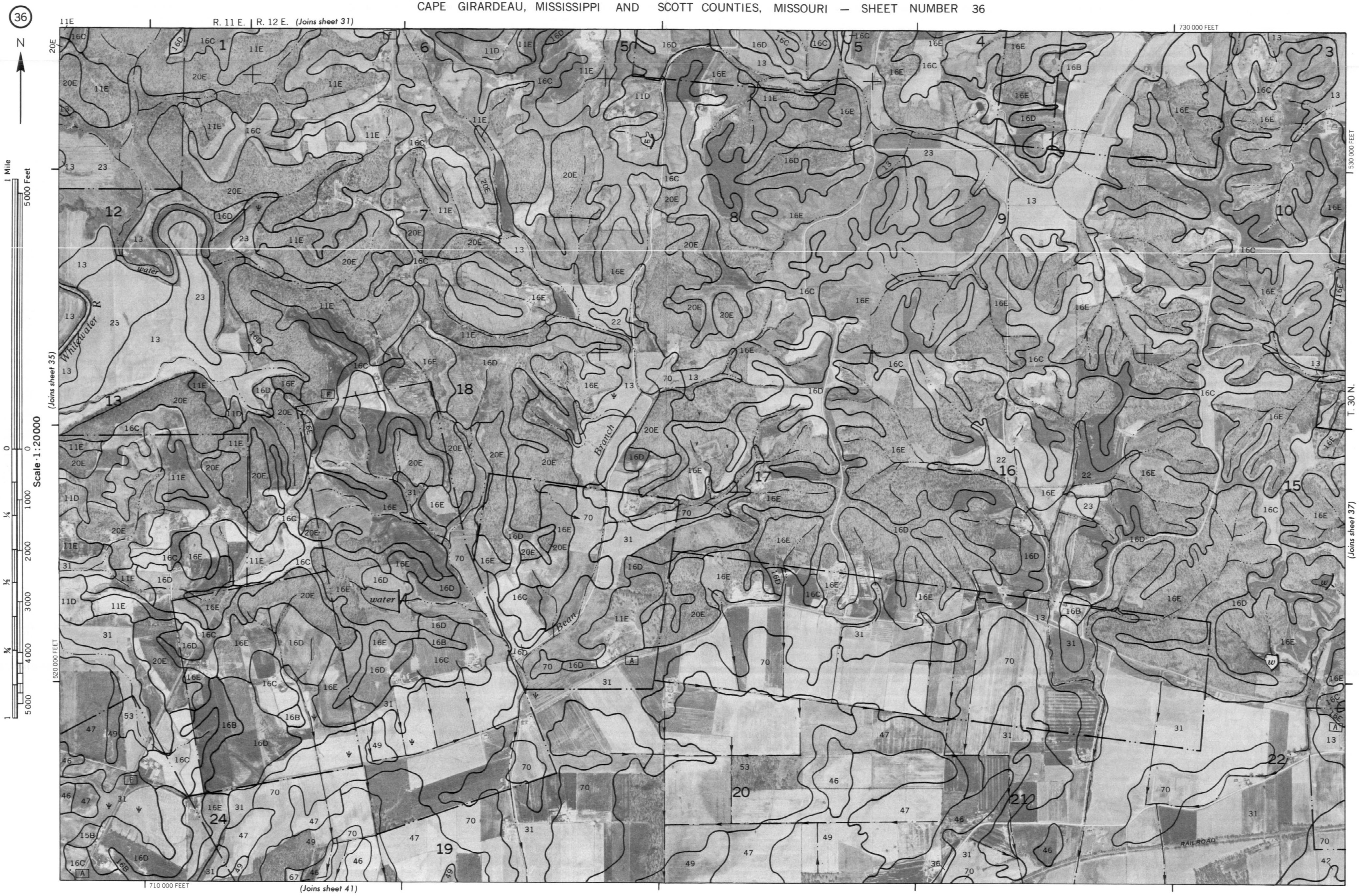


(35)
N
685 000 FEET
R. 11 E.
(Joins sheet 30)
530 000 FEET
T. 30 N.
(Joins sheet 36)
520 000 FEET
(Joins sheet 40)
705 000 FEET
Lake Girardeau
Crump
WHITEWATER
RIVER
WHITEWATER
RIVER
Hog Creek
Crooked Creek
Crooked Creek
Crooked Creek
BOLLINGER COUNTY
U
RA
A
1 Mile
5000 Feet
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
Scale 1:20000
2
3
4
5
8
9
10
11
12
13
14
15
16
17
20
22

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 35

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 36


36
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
11E
R. 11 E.
R. 12 E.
(Joins sheet 31)
730 000 FEET
530 000 FEET
(Joins sheet 35)
T. 30 N.
(Joins sheet 37)
520 000 FEET
710 000 FEET
(Joins sheet 41)
Whitewater R
water
Bean Branch
RAILROAD
1
3
4
5
6
7
8
9
10
12
13
15
16
17
18
19
20
21
22
24

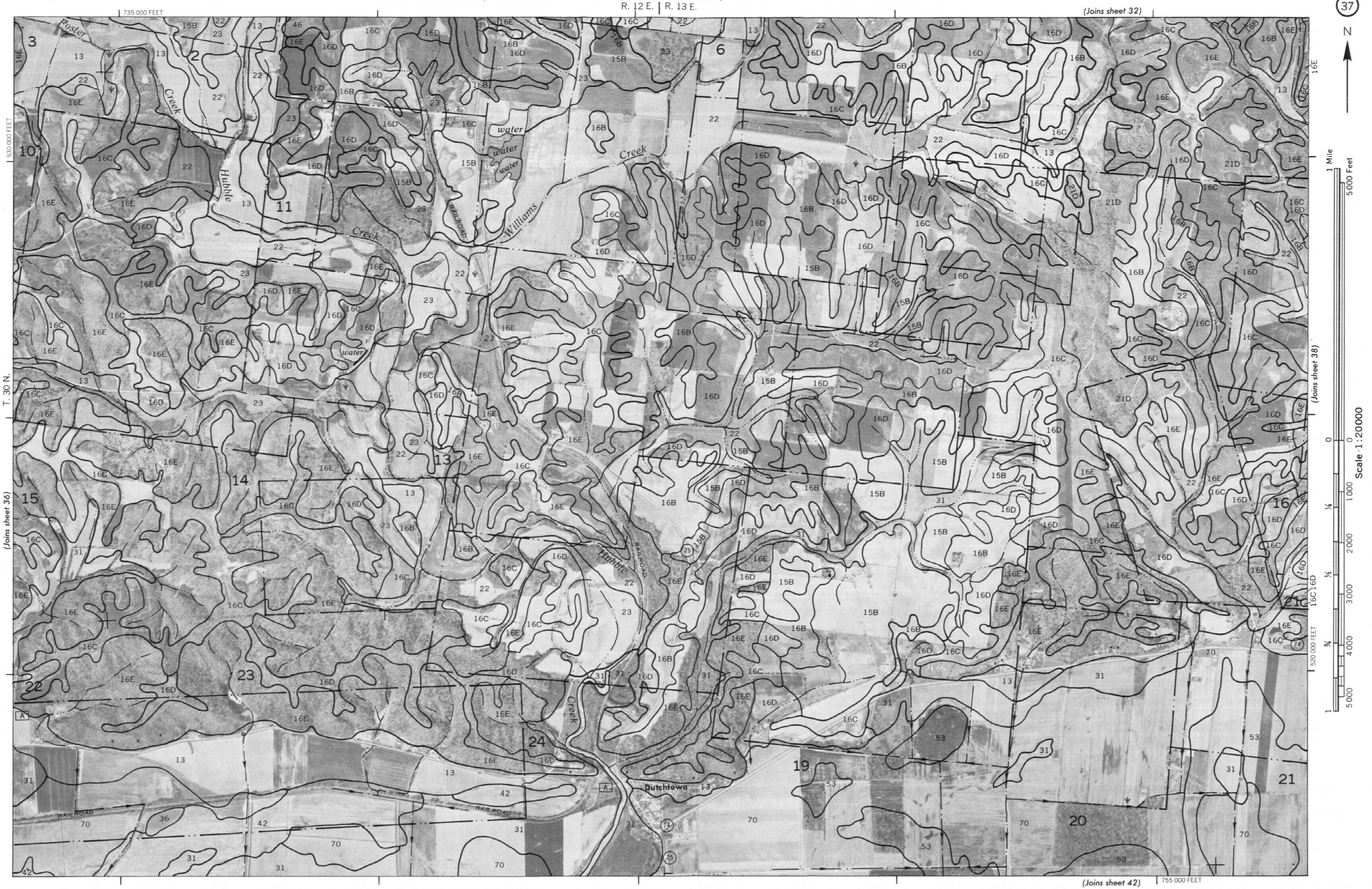
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 36

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 37

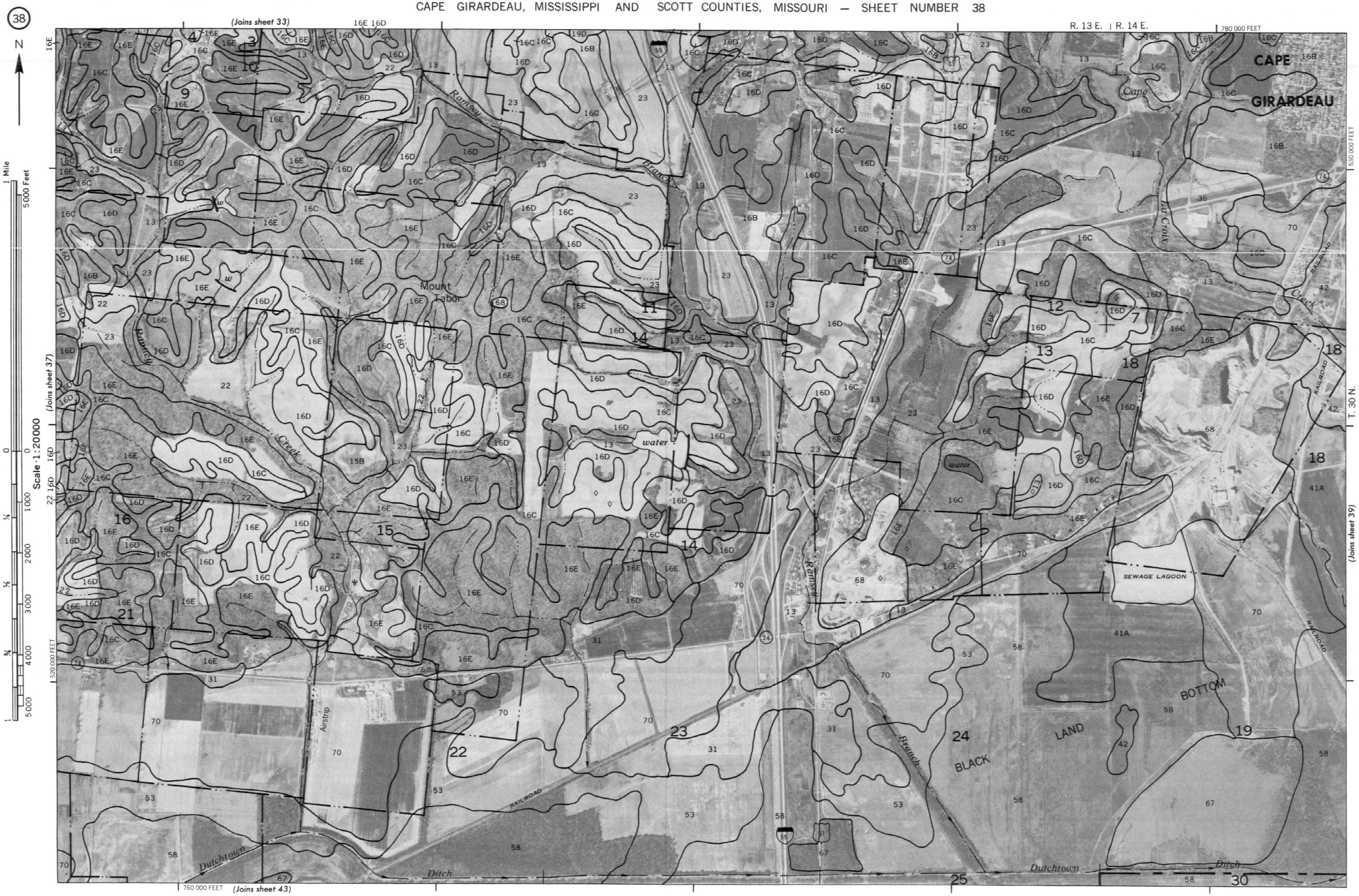
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 37

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



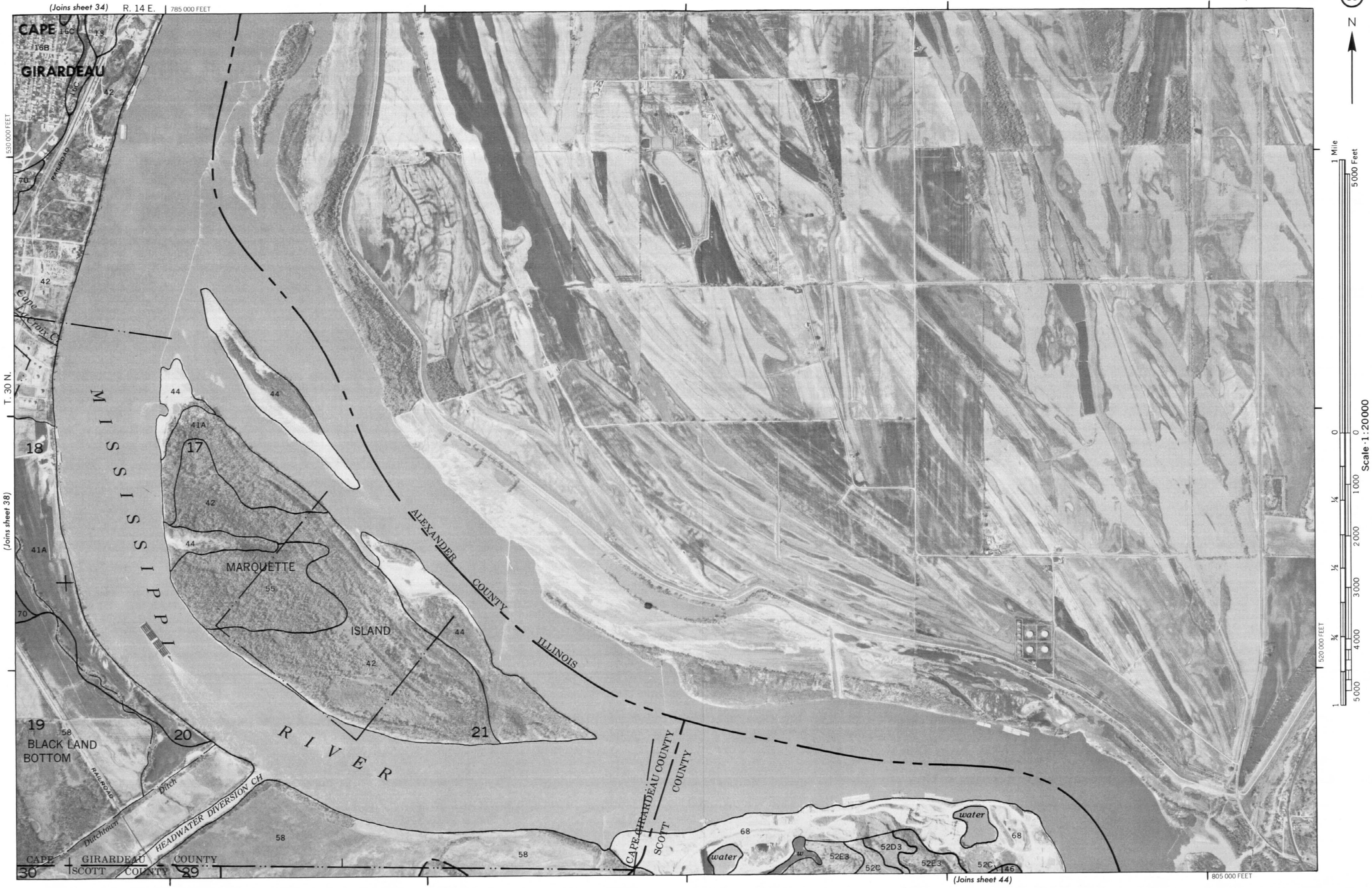
37
N
R. 12 E.
R. 13 E.
735 000 FEET
(Joins sheet 32)
530 000 FEET
T. 30 N.
(Joins sheet 36)
(Joins sheet 38)
(Joins sheet 42)
755 000 FEET
520 000 FEET
1 Mile
5000 Feet
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
Scale 1:20000
Foster
Creek
Hubble
Creek
Williams
Creek
Hubble
Creek
RAILROAD
RAILROAD
RAILROAD
RAILROAD
water
water
water
water
water
Dutchtown
25
25
25
74
74
A
A
3
2
6
7
10
11
13
14
15
16
19
20
21
22
23
24

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 38


38
N
(Joins sheet 33)
(Joins sheet 37)
(Joins sheet 39)
(Joins sheet 43)
R. 13 E. | R. 14 E.
T. 30 N.
780 000 FEET
760 000 FEET
530 000 FEET
520 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
CAPE GIRARDEAU
Mount Tabor
Ramsey Branch
Ramsey Creek
Cape La Croix Creek
Dutchtown Ditch
BLACK LAND BOTTOM
SEWAGE LAGOON
Airstrip
RAILROAD
water
16B
16C
16D
16E
13
15B
19D
22
23
31
36
41A
42
53
58
67
68
70

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

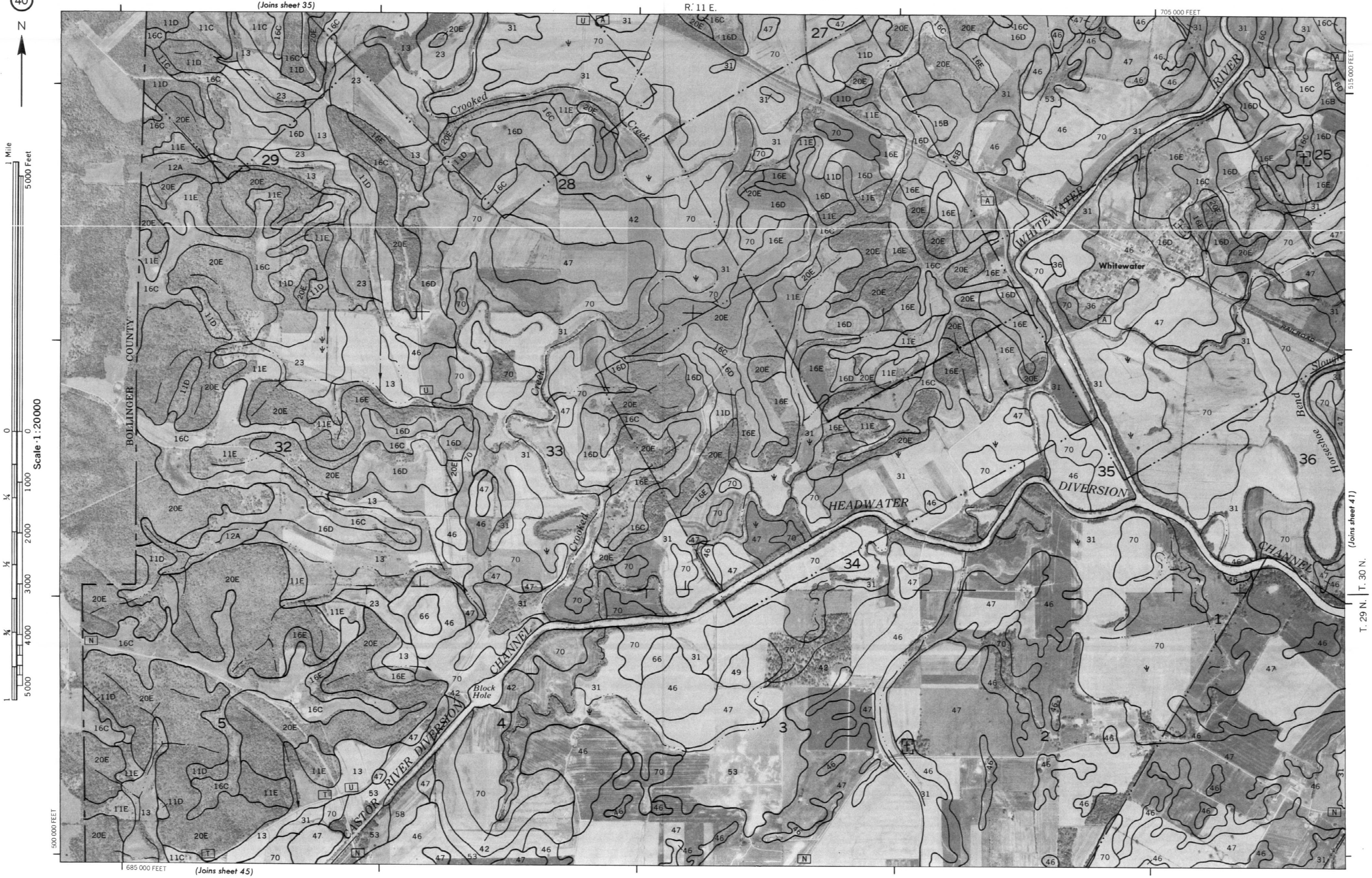
CAPE GIRARDEAU; MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 38


(Joins sheet 34)
R. 14 E.
785 000 FEET
CAPE
GIRARDEAU
16C
16B
13
42
RAILROAD
530 000 FEET
70
42
Cape LaCroix Cr
T. 30 N.
18
(Joins sheet 38)
41A
70
19
58
BLACK LAND BOTTOM
20
RAILROAD
Ditch
Dutchtown
HEADWATER DIVERSION CH
58
CAPE GIRARDEAU COUNTY
SCOTT COUNTY
30
29
MISSISSIPPI
RIVER
44
44
41A
17
42
44
MARQUETTE
55
ISLAND
44
42
21
ALEXANDER COUNTY
ILLINOIS
CAPE GIRARDEAU COUNTY
SCOTT COUNTY
58
68
water
w
52E3
52C
52D3
52E3
52C
46
water
68
(Joins sheet 44)
805 000 FEET
520 000 FEET
N
1 Mile
5000 Feet
0
0
Scale 1:20000
1000
¼
2000
½
3000
¾
4000
5000
1

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 39

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

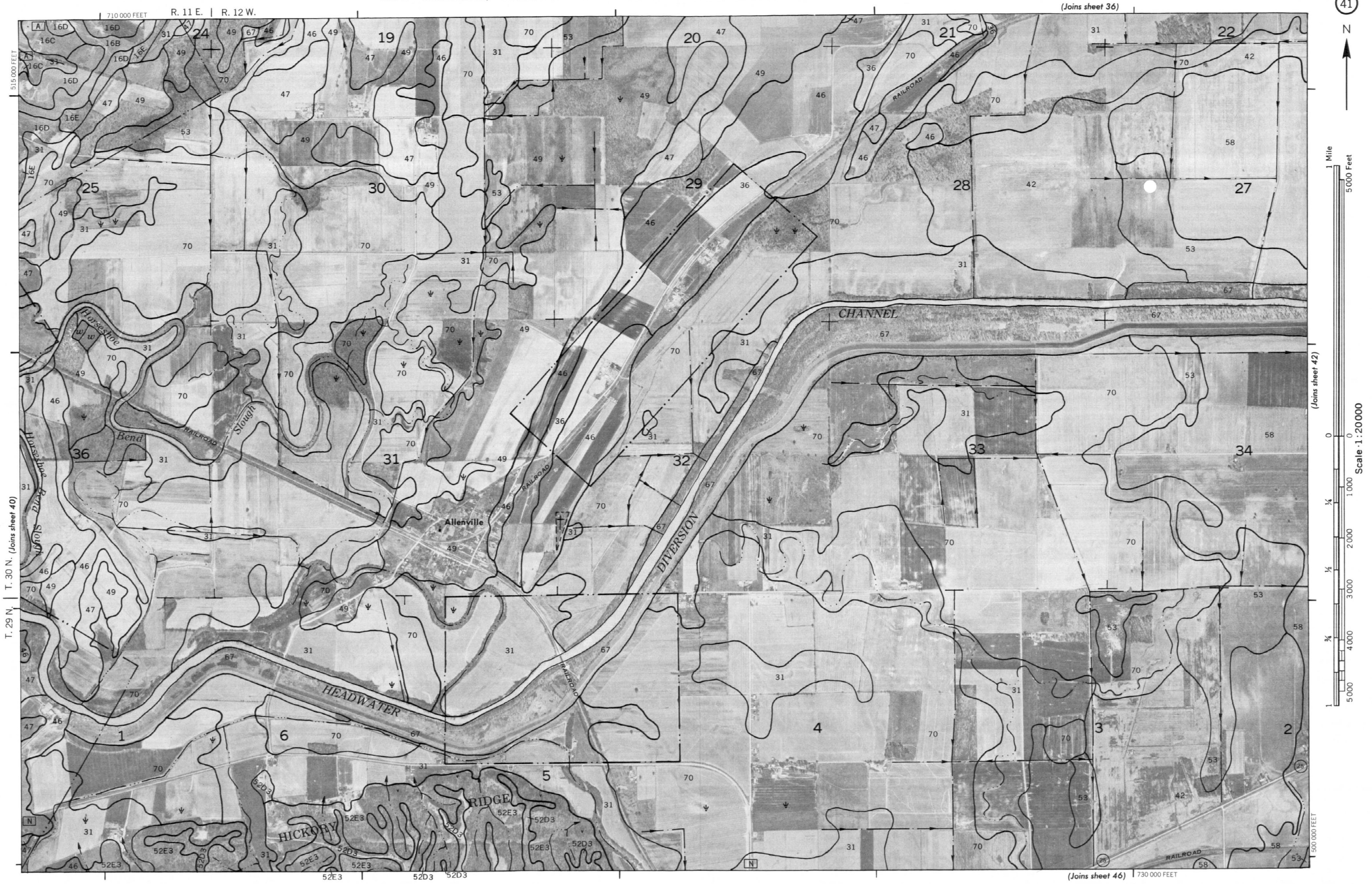
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 40


40
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
(Joins sheet 35)
R. 11 E.
705 000 FEET
515 000 FEET
500 000 FEET
685 000 FEET
(Joins sheet 45)
(Joins sheet 41)
T. 30 N.
T. 29 N.
BOLLINGER COUNTY
Crooked Creek
Creek
Crooked
WHITEWATER RIVER
Whitewater
RAILROAD
Horseshoe Bend Slough
HEADWATER DIVERSION CHANNEL
CASTOR RIVER DIVERSION CHANNEL
Block Hole
27
25
29
28
32
33
36
35
34
5
4
3
2
1
U
A
N
T

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 40

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 41

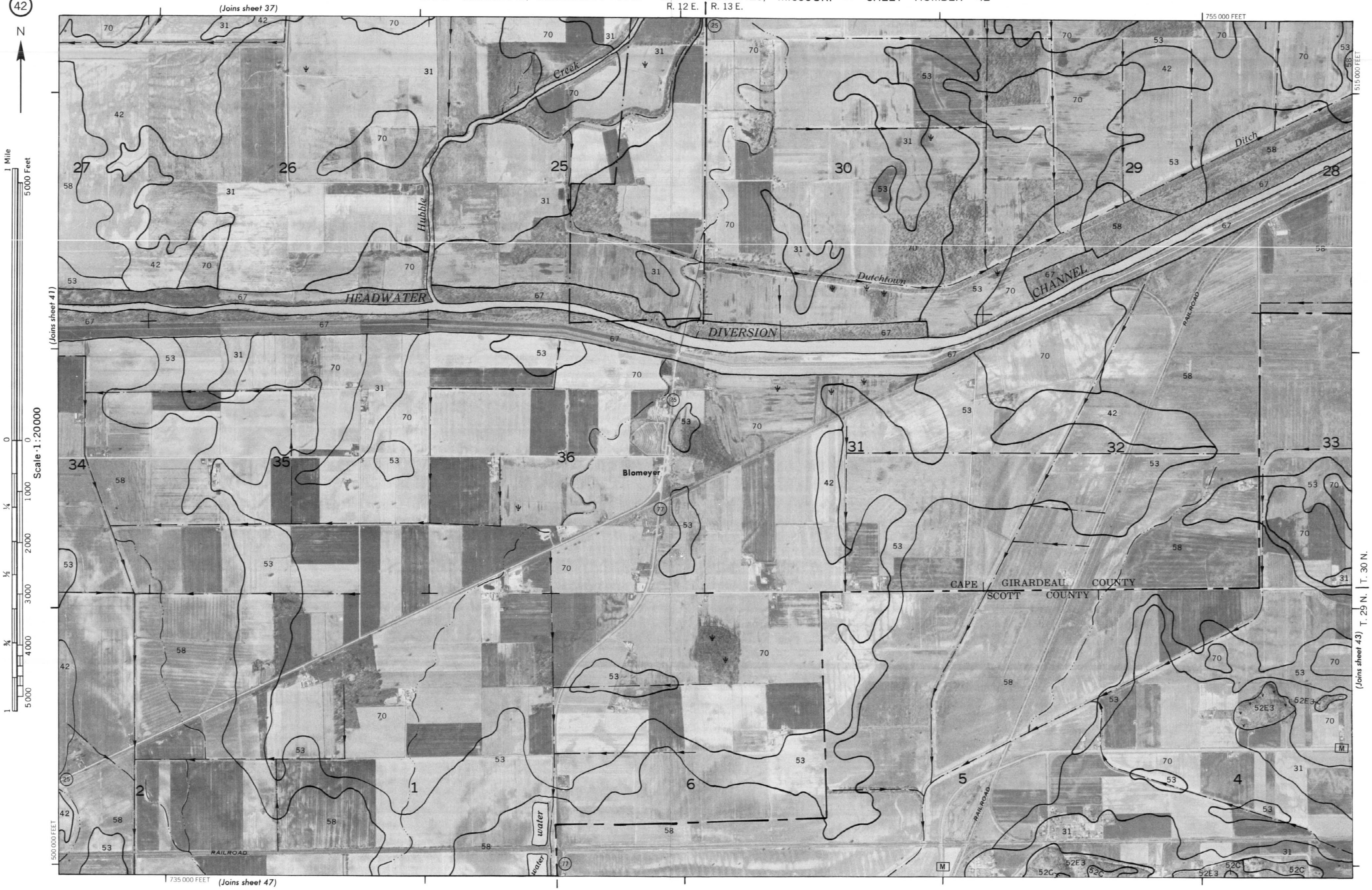


(41)
N
(Joins sheet 36)
(Joins sheet 42)
(Joins sheet 46)
(Joins sheet 40)
710 000 FEET
730 000 FEET
515 000 FEET
500 000 FEET
R. 11 E. | R. 12 W.
T. 30 N.
T. 29 N.
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
24
19
20
21
22
25
30
29
28
27
36
31
32
33
34
1
6
5
4
3
2
Horseshoe Bend Slough
Horseshoe Bend Slough
Allenville
RAILROAD
CHANNEL
DIVERSION
HEADWATER
HICKORY RIDGE
A
N
25
16B
16C
16D
16E
31
36
42
46
47
49
52D3
52E3
53
58
67
70
w

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 41

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

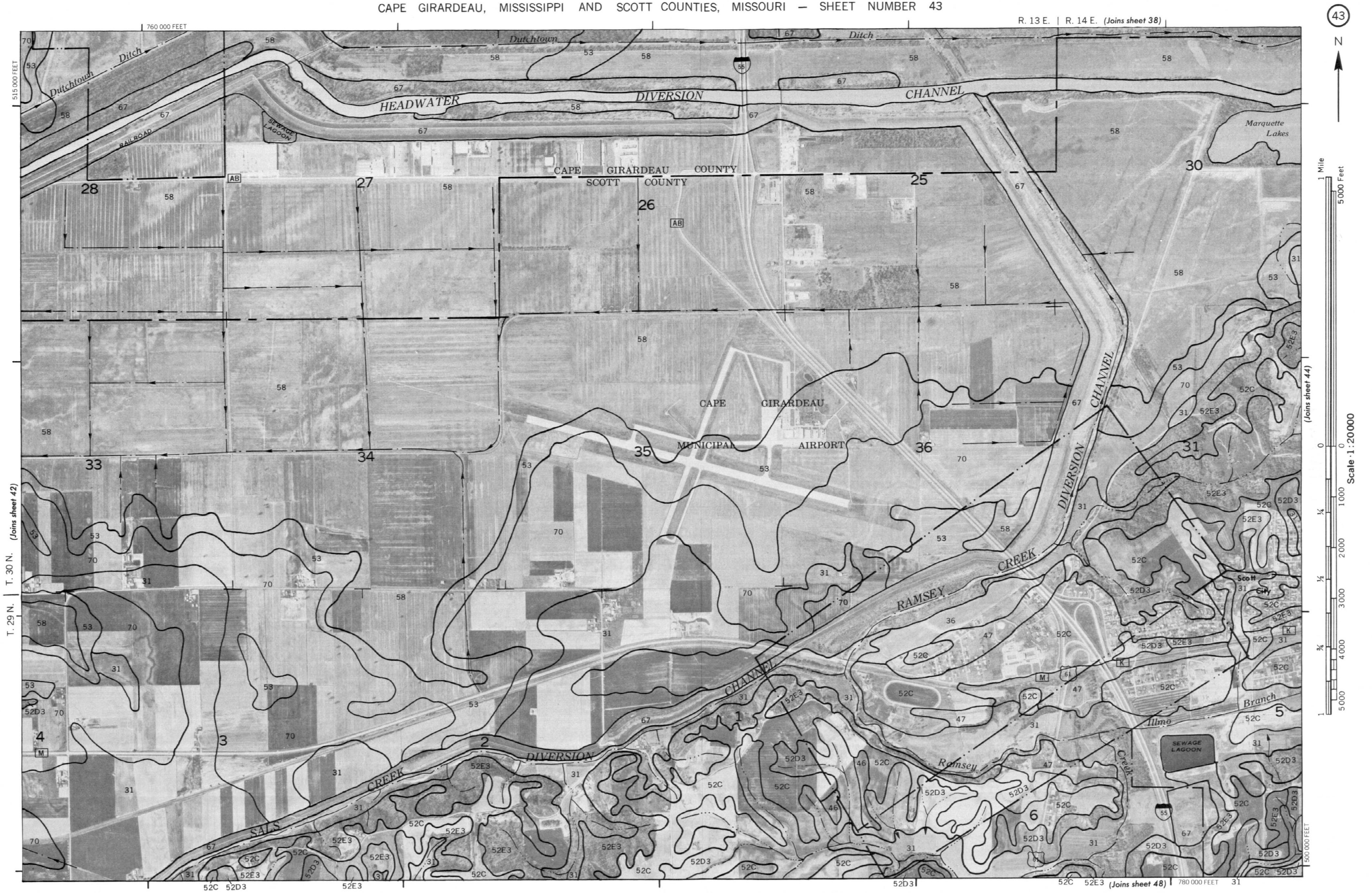
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 42


42
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
(Joins sheet 37)
R. 12 E.
R. 13 E.
755 000 FEET
515 000 FEET
(Joins sheet 41)
(Joins sheet 43)
(Joins sheet 47)
735 000 FEET
500 000 FEET
T. 30 N.
T. 29 N.
Creek
Hubble
HEADWATER
DIVERSION
CHANNEL
Dutchtown
Ditch
RAILROAD
Blomeyer
CAPE GIRARDEAU COUNTY
SCOTT COUNTY
water
25
77
M
27
26
25
30
29
28
34
35
36
31
32
33
2
1
6
5
4
31
42
53
58
67
70
52E3
52C

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 42

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 43

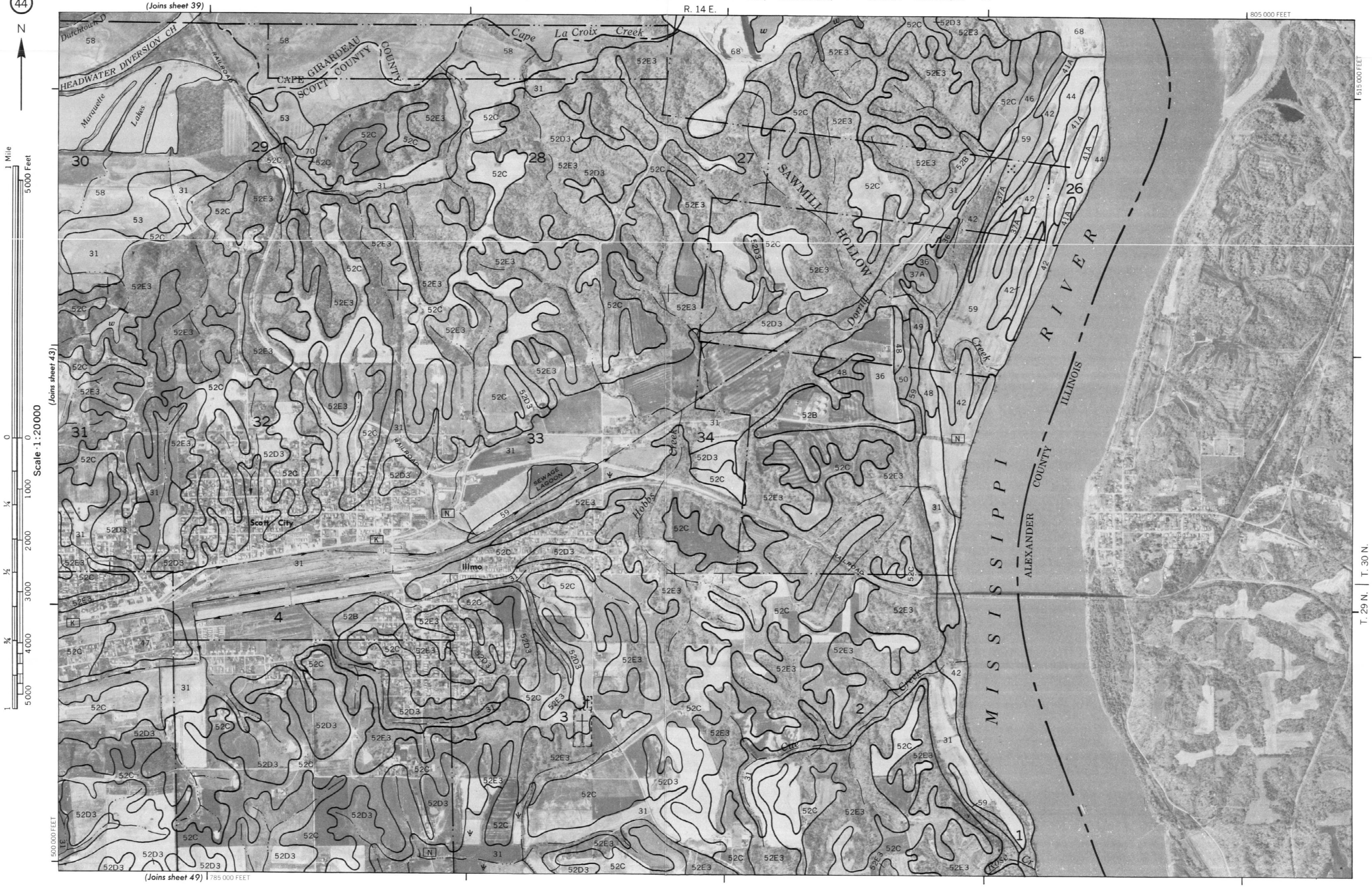


43
N
760 000 FEET
R. 13 E. | R. 14 E. (Joins sheet 38)
515 000 FEET
Dutchtown Ditch
HEADWATER DIVERSION CHANNEL
RAILROAD
SEWAGE LAGOON
Marquette Lakes
CAPE GIRARDEAU COUNTY
SCOTT COUNTY
AB
28
27
26
25
30
33
34
35
36
31
CAPE GIRARDEAU MUNICIPAL AIRPORT
DIVERSION CHANNEL
RAMSEY CREEK
SALS CREEK DIVERSION CHANNEL
Ramsey
Illmo Branch
Creek
Scott City
SEWAGE LAGOON
(Joins sheet 42)
T. 30 N.
T. 29 N.
(Joins sheet 44)
(Joins sheet 48)
780 000 FEET
500 000 FEET
M
K
55
61
1
2
3
4
5
6
58
53
67
70
31
36
46
47
52C
52D3
52E3
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 43

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

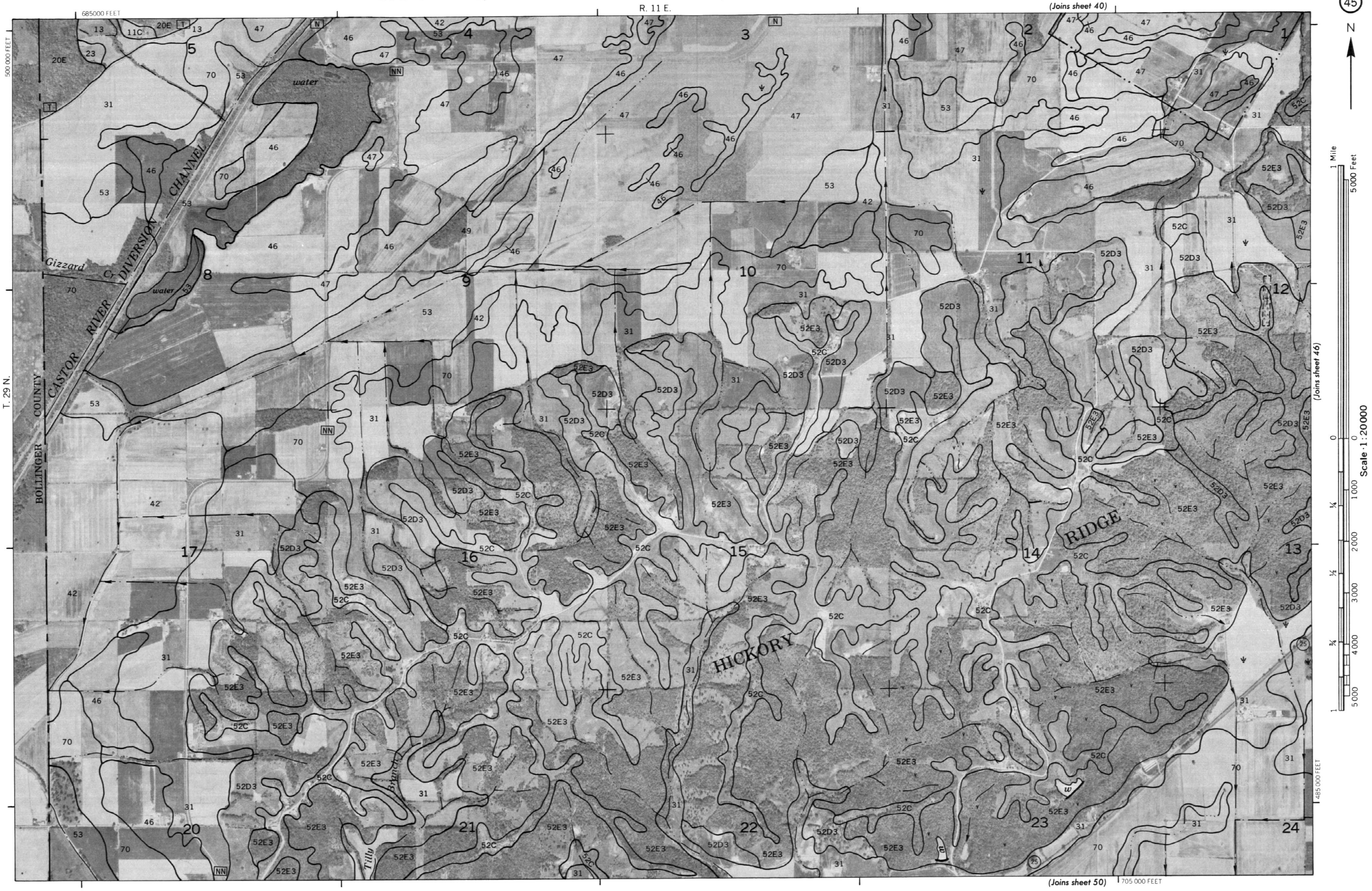
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 44


44
N
(Joins sheet 39)
(Joins sheet 43)
(Joins sheet 49)
R. 14 E.
805 000 FEET
515 000 FEET
500 000 FEET
785 000 FEET
T. 29 N. | T. 30 N.
Scale 1:20000
1 Mile
5000 Feet
0
1/4
1/2
3/4
1000
2000
3000
4000
5000
Dutchtown D.
HEADWATER DIVERSION CH.
Marquette
Lakes
RAILROAD
CAPE GIRARDEAU COUNTY
SCOTT COUNTY
Cape La Croix Creek
SAWMILL HOLLOW
Dorrity Creek
Hobbs Creek
Cue Creek
Rose Cr.
SEWAGE LAGOON
Scott City
Illmo
MISSISSIPPI RIVER
ALEXANDER COUNTY
ILLINOIS
N
K
w
1
2
3
4
26
27
28
29
30
31
32
33
34
58
53
70
31
52C
52E3
52D3
52B
68
41A
42
44
46
59
37A
36
48
49
50
47

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 44

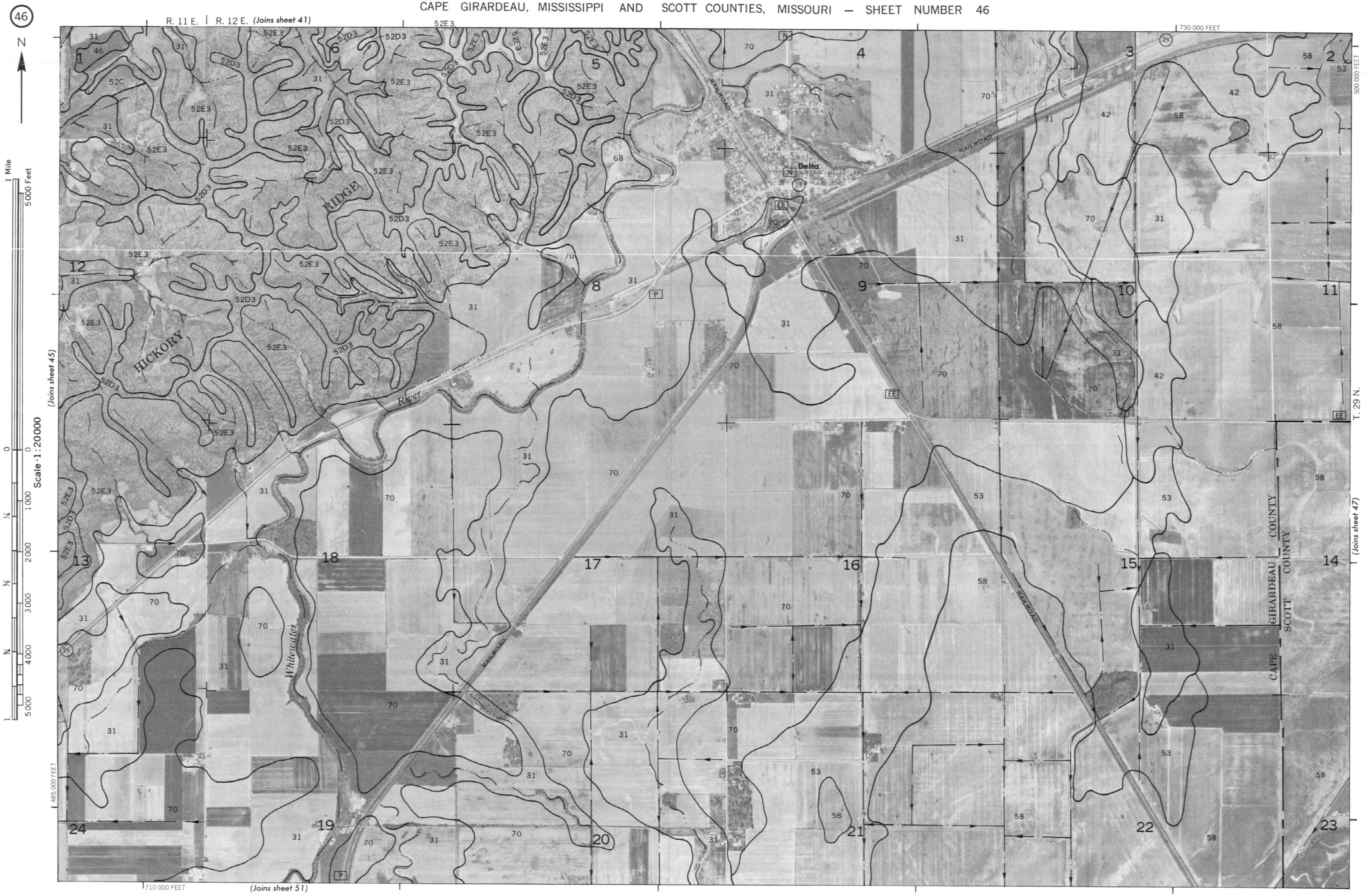
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 45


685 000 FEET
R. 11 E.
(Joins sheet 40)
N
500 000 FEET
T. 29 N.
(Joins sheet 46)
485 000 FEET
(Joins sheet 50)
705 000 FEET
Scale 1:20 000
1 Mile
5 000 Feet
0
¼
½
¾
1000
2000
3000
4000
5000
BOLLINGER COUNTY
CASTOR RIVER DIVERSION CHANNEL
Gizzard Cr.
water
HICKORY RIDGE
Tilly Branch
w
T
N
NN
25
1
2
3
4
5
8
9
10
11
12
13
14
15
16
17
20
21
22
23
24
11C
13
20E
23
31
42
46
47
49
53
70
52C
52D3
52E3

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 45

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

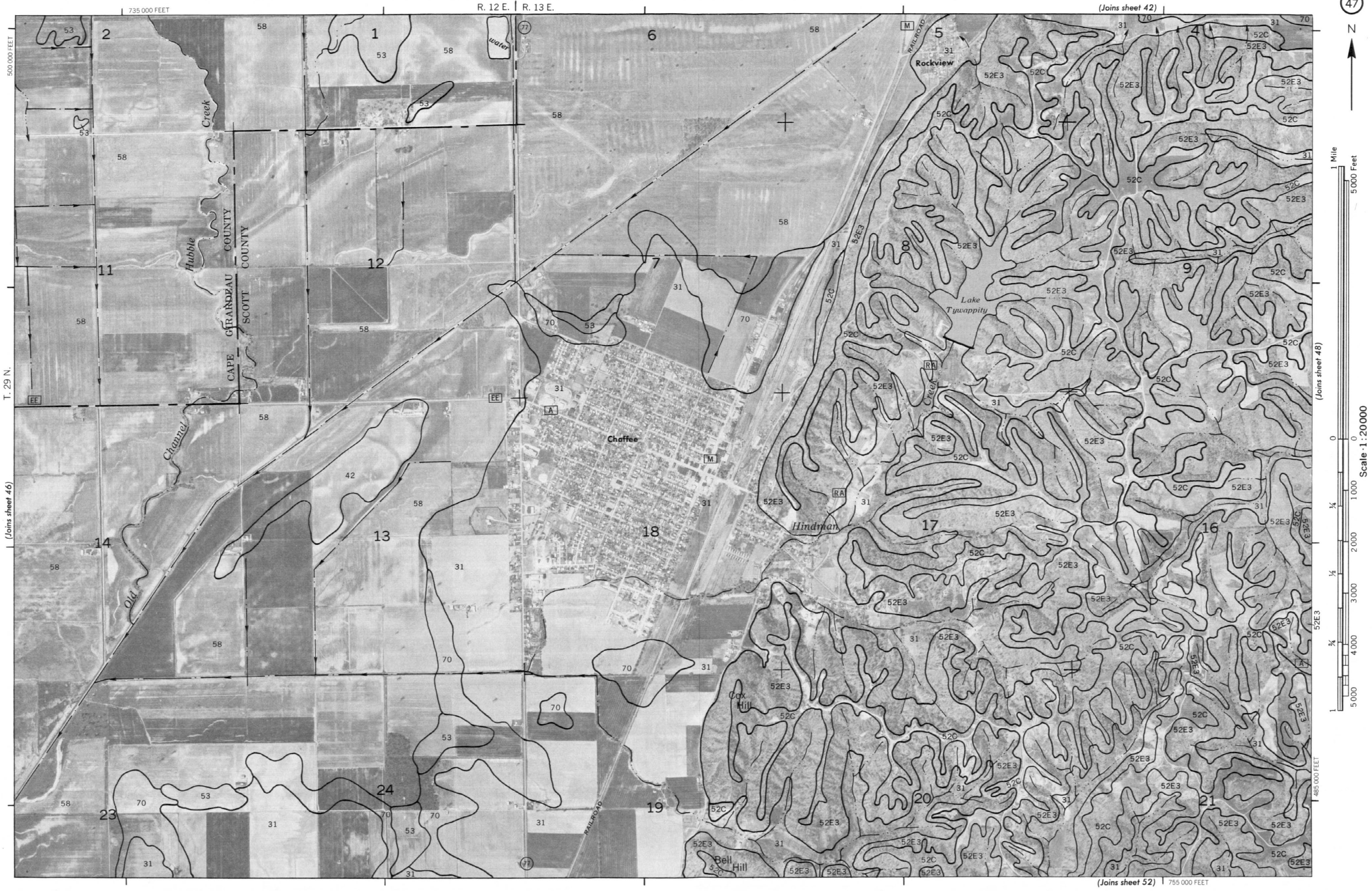
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 46


46
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
R. 11 E.
R. 12 E. (Joins sheet 41)
(Joins sheet 45)
(Joins sheet 47)
(Joins sheet 51)
T. 29 N.
730 000 FEET
500 000 FEET
485 000 FEET
710 000 FEET
HICKORY
RIDGE
River
Whitewater
RAILROAD
Delta
CAPE GIRARDEAU COUNTY
SCOTT COUNTY
N
25
EE
P
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
31
42
46
52C
52D3
52E3
53
58
68
70

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 46

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 47


47
N
735 000 FEET
500 000 FEET
R. 12 E.
R. 13 E.
(Joins sheet 42)
(Joins sheet 46)
(Joins sheet 48)
(Joins sheet 52)
755 000 FEET
485 000 FEET
T. 29 N.
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
Rockview
Chaffee
Hindman
Lake Tywappity
Cox Hill
Bell Hill
Hubble Creek
Old Channel
Creek
CAPE GIRARDEAU COUNTY
SCOTT COUNTY
RAILROAD
water
77
EE
A
M
RA
1
2
4
5
6
7
8
9
11
12
13
14
16
17
18
19
20
21
23
24
31
42
52C
52E3
53
58
70

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 47

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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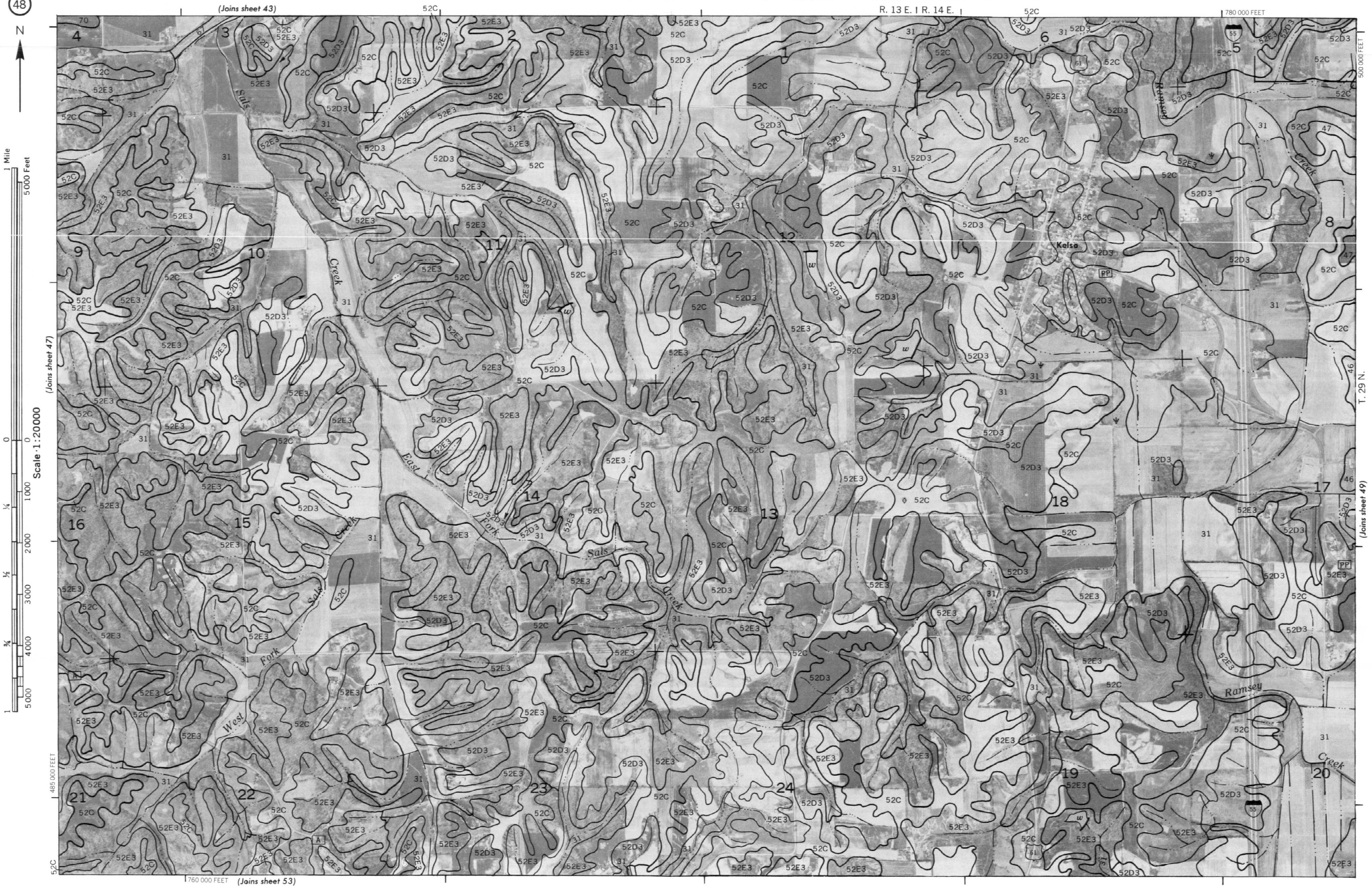
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 48

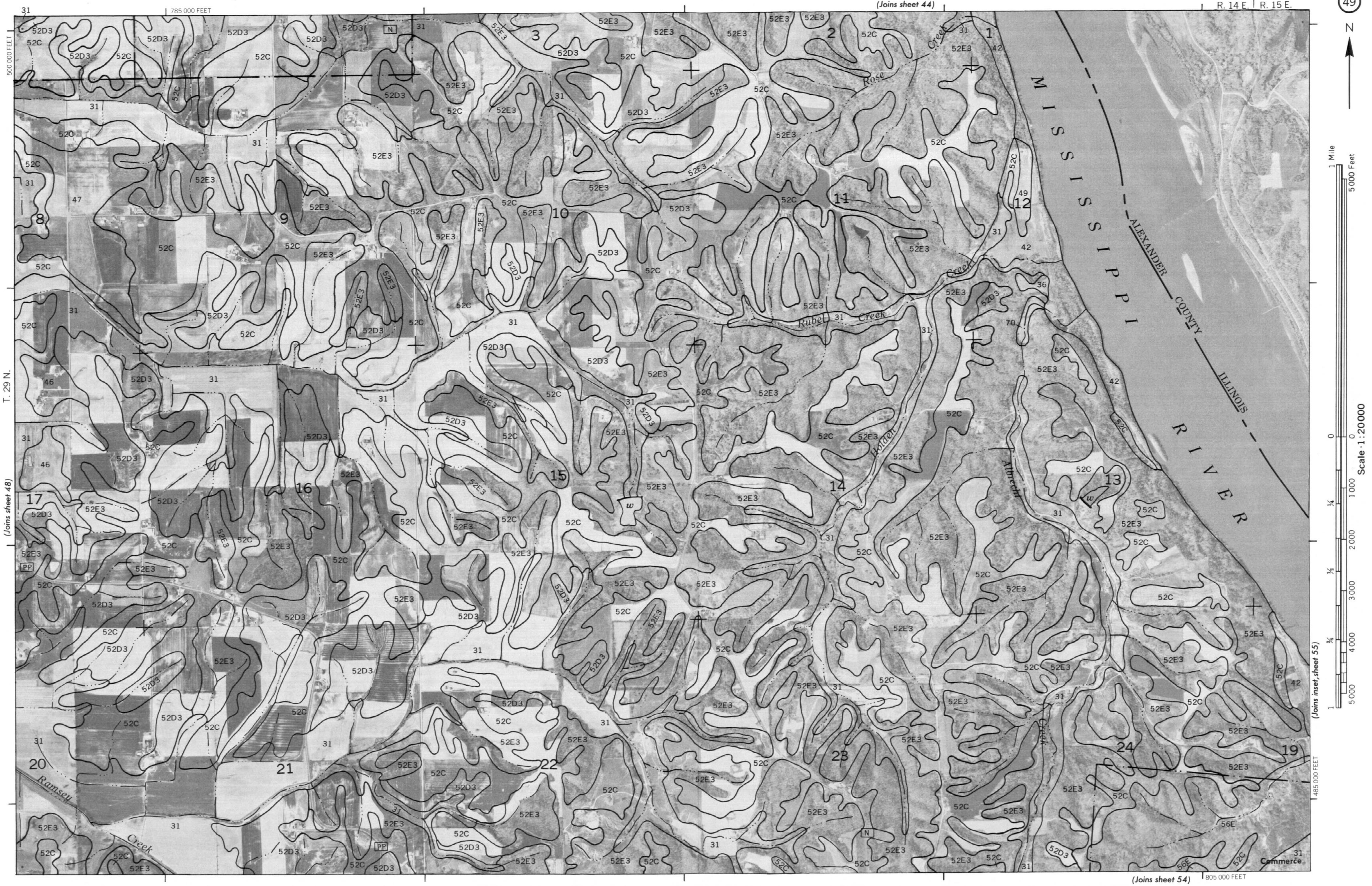


N
(Joins sheet 43)
(Joins sheet 47)
(Joins sheet 49)
(Joins sheet 53)
R. 13 E. | R. 14 E.
T. 29 N.
780 000 FEET
500 000 FEET
485 000 FEET
760 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
Kelso
Sals Creek
East Fork Sals Creek
West Fork Sals Creek
Ramsey Creek
55
61
A
PP
w
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
31
46
47
52C
52D3
52E3
67
70

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 48

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 49

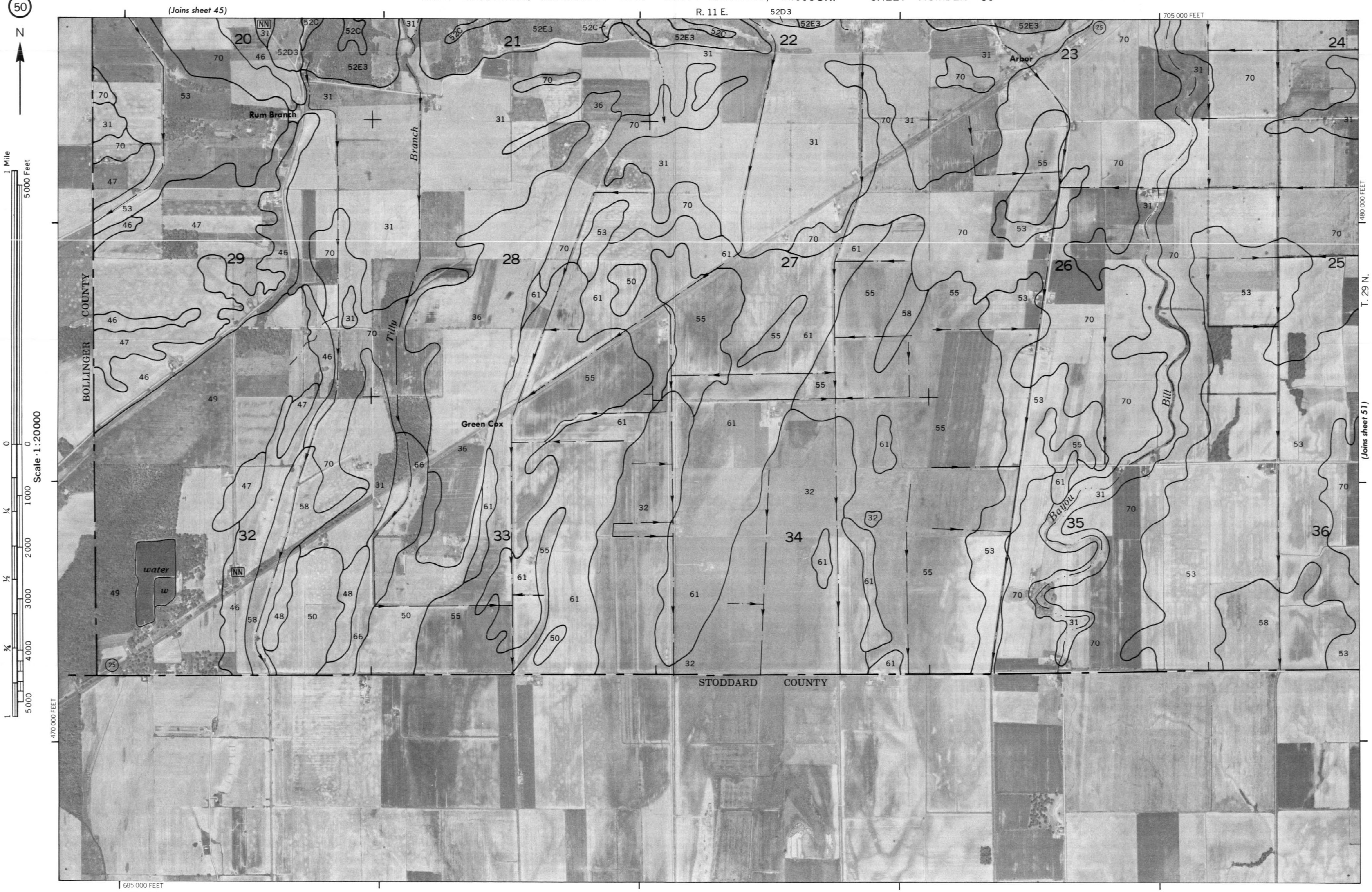


(Joins sheet 44)
(Joins sheet 48)
(Joins inset, sheet 55)
(Joins sheet 54)
785 000 FEET
805 000 FEET
500 000 FEET
485 000 FEET
T. 29 N.
R. 14 E.
R. 15 E.
49
N
MISSISSIPPI RIVER
ALEXANDER COUNTY
ILLINOIS
Rose Creek
Rubel Creek
Holden
Albrecht
Creek
Ramsey Creek
Commerce
1 Mile
5000 Feet
0
¼
½
¾
1
1000
2000
3000
4000
5000
Scale 1:20000
1
2
3
8
9
10
11
12
13
14
15
16
17
19
20
21
22
23
24
52C
52D3
52E3
31
36
42
46
47
49
56E
70
w
PP
N

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 49

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

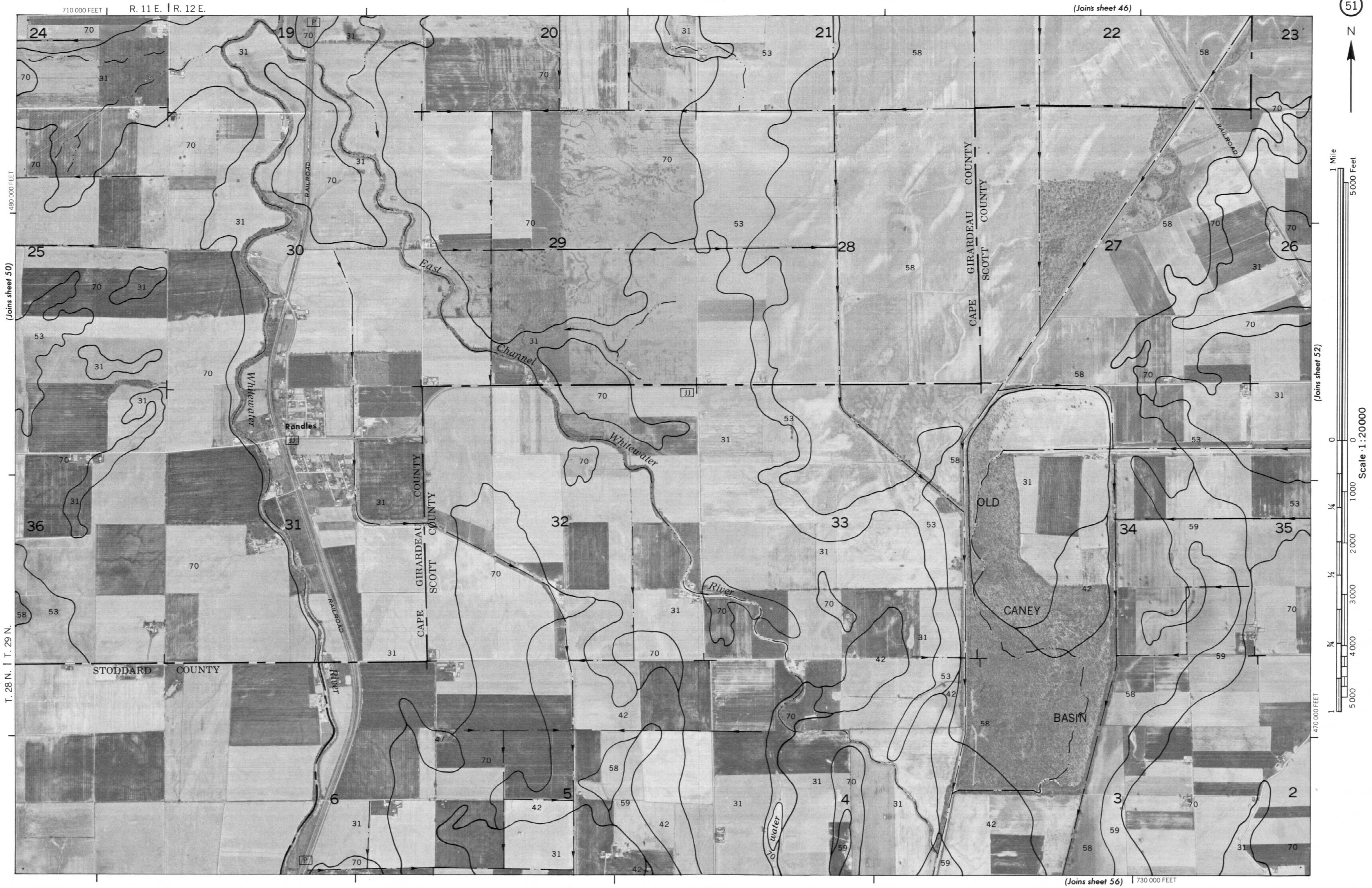
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 50


N
(Joins sheet 45)
R. 11 E.
705 000 FEET
480 000 FEET
T. 29 N.
(Joins sheet 51)
470 000 FEET
685 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
BOLLINGER COUNTY
STODDARD COUNTY
Rum Branch
Tilly Branch
Green Cox
Arbor
Bayou Bill
water
w
NN
25
20
21
22
23
24
25
26
27
28
29
32
33
34
35
36
31
36
46
47
48
49
50
52C
52D3
52E3
53
55
58
61
66
70

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 50

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 51

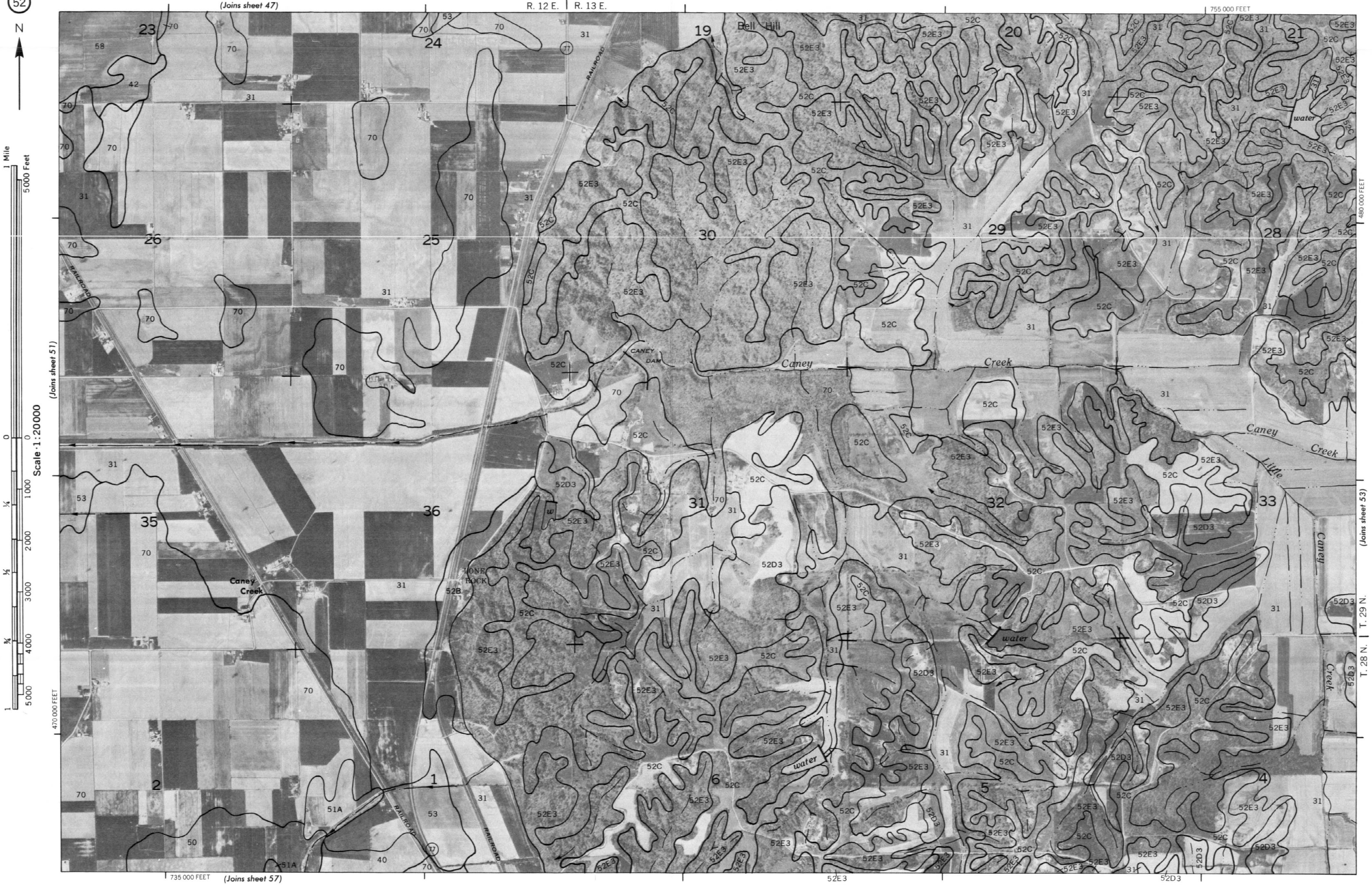

51
710 000 FEET
R. 11 E.
R. 12 E.
(Joins sheet 46)
(Joins sheet 50)
(Joins sheet 52)
(Joins sheet 56)
730 000 FEET
480 000 FEET
470 000 FEET
T. 29 N.
T. 28 N.
N
24
19
20
21
22
23
25
30
29
28
27
26
36
31
32
33
34
35
6
5
4
3
2
RAILROAD
East
Channel
Whitewater
River
Randles
JJ
P
COUNTY
GIRARDEAU
SCOTT
CAPE
STODDARD
OLD
CANEY
BASIN
water
31
42
47
53
58
59
70
1 Mile
5 000 Feet
0
¼
½
¾
1
1000
2000
3000
4000
5000
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 51

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

(52)

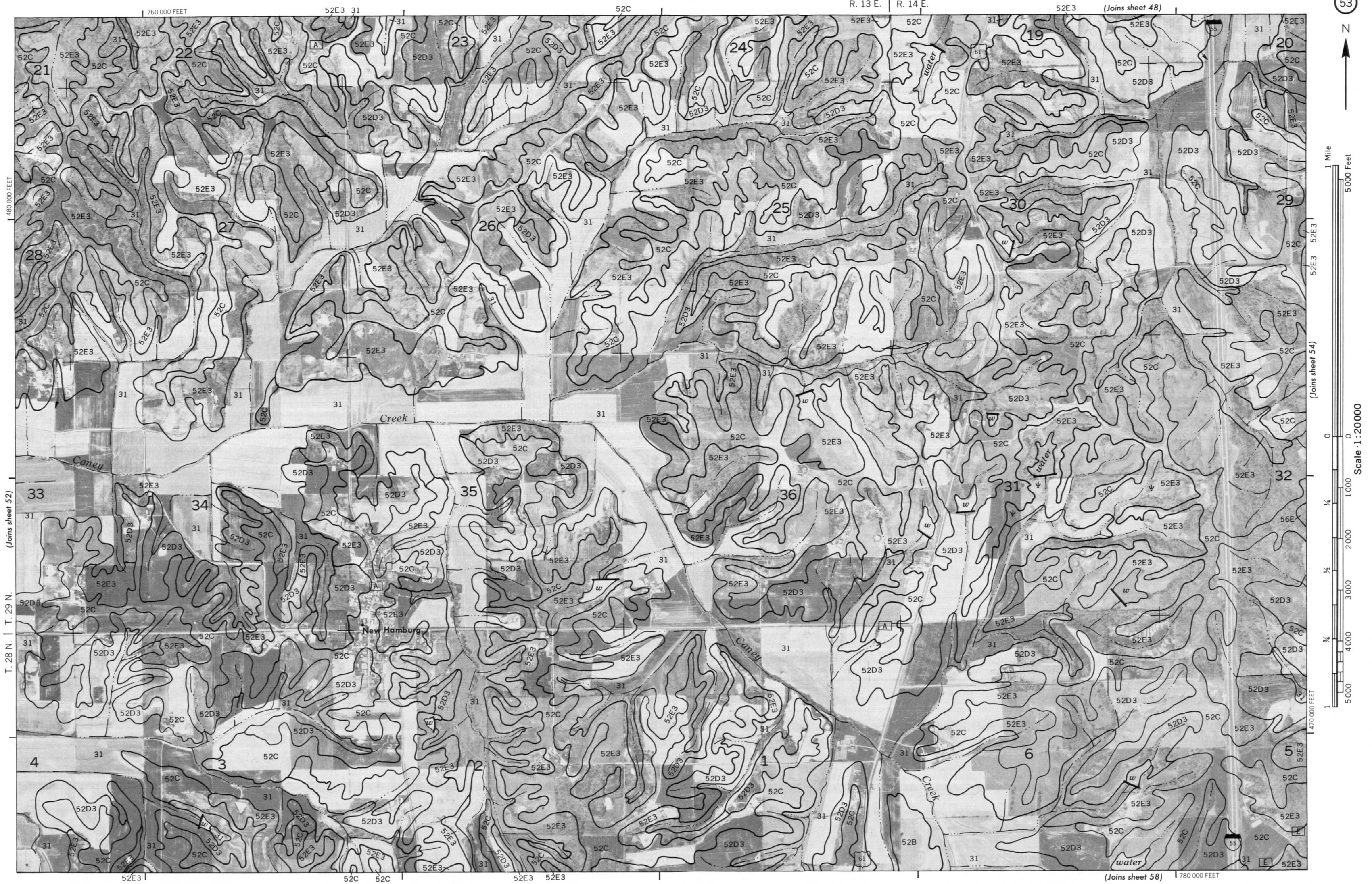
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 52


N
(Joins sheet 47)
R. 12 E.
R. 13 E.
755 000 FEET
480 000 FEET
470 000 FEET
735 000 FEET
(Joins sheet 51)
(Joins sheet 53)
(Joins sheet 57)
T. 29 N.
T. 28 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
Bell Hill
RAILROAD
CANEY DAM
Caney Creek
Little Caney Creek
LONE ROCK
water
w
23
24
19
20
21
26
25
30
29
28
35
36
31
32
33
2
1
6
5
4
70
58
42
31
53
77
52C
52E3
52D3
52B
51A
50
40

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 52

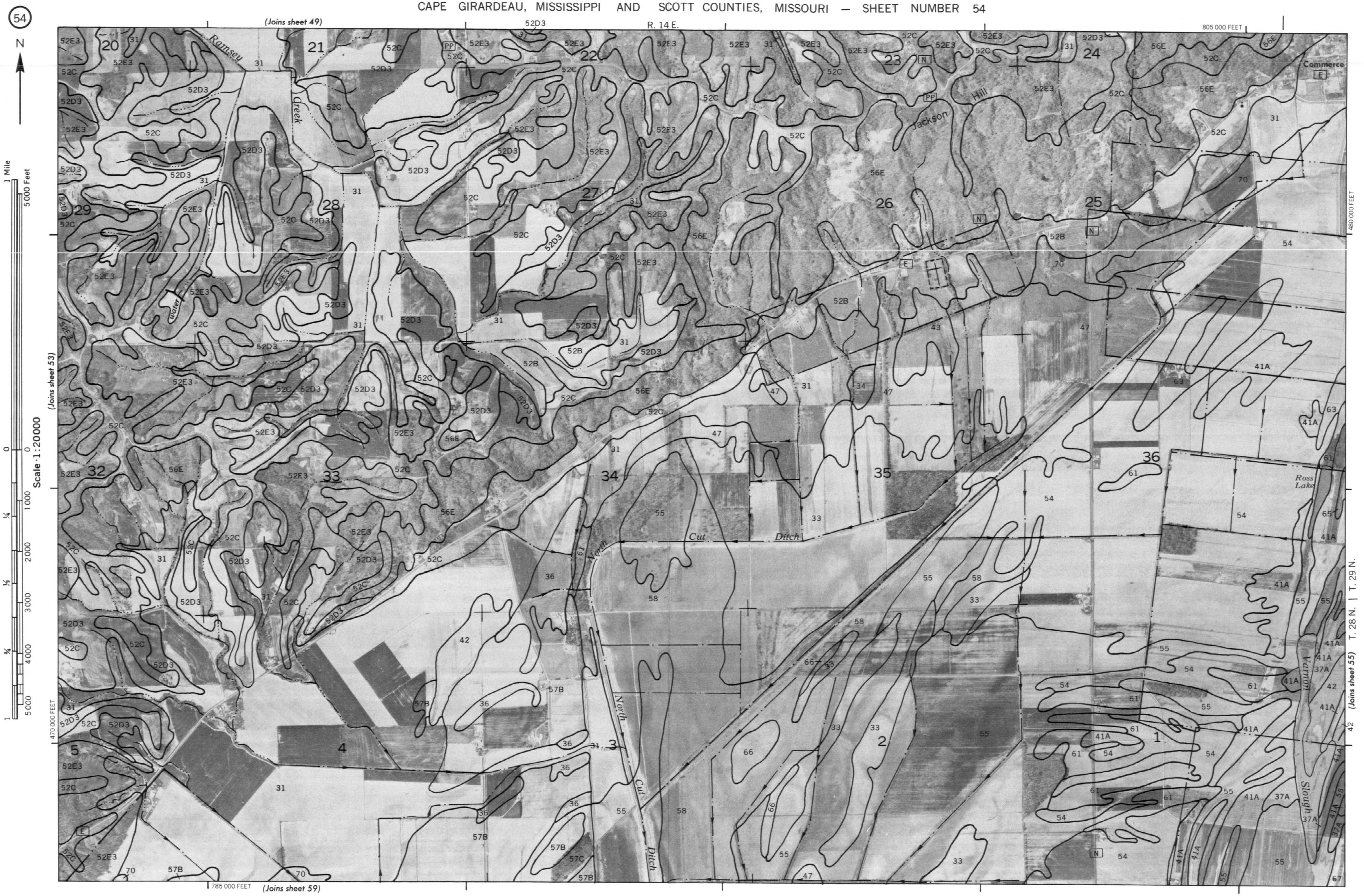
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 53


760 000 FEET
780 000 FEET
480 000 FEET
470 000 FEET
R. 13 E.
R. 14 E.
T. 29 N.
T. 28 N.
(Joins sheet 48)
(Joins sheet 52)
(Joins sheet 54)
(Joins sheet 58)
N
Scale 1:20000
1 Mile
5000 Feet
0
¼
½
¾
1
1000
2000
3000
4000
5000
New Hamburg
Caney Creek
Creek
Caney
water
w
A
61
55
E
1
2
3
4
5
6
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
31
52B
52C
52D3
52E3
56E

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 53

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 54

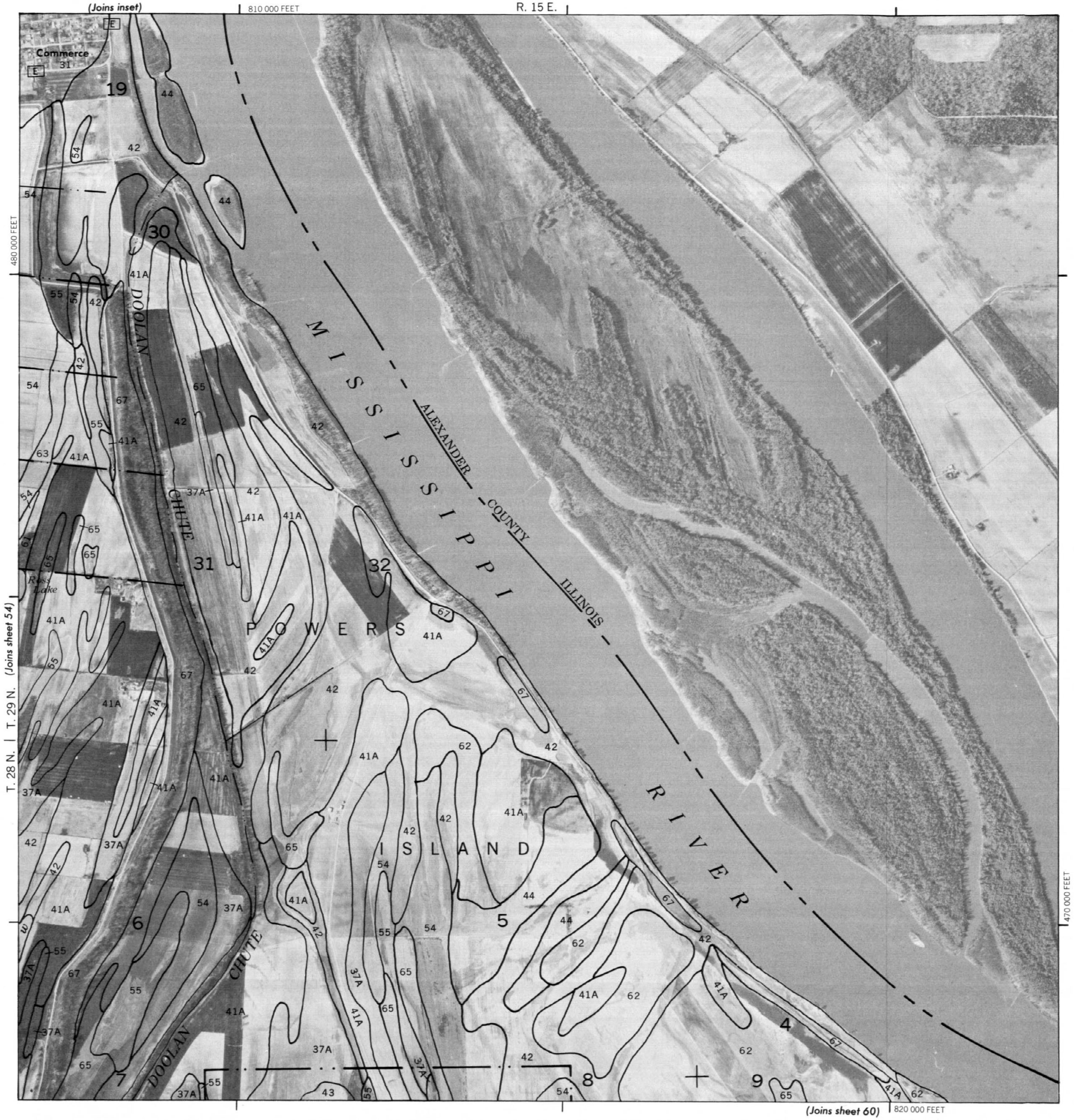

54
N
(Joins sheet 49)
R. 14 E.
805 000 FEET
480 000 FEET
(Joins sheet 53)
(Joins sheet 55)
(Joins sheet 59)
785 000 FEET
470 000 FEET
T. 28 N. | T. 29 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
Ramsey
Creek
water
Jackson
Hill
Commerce
North
Cut
Ditch
Ross Lake
Varnon
Slough
20
21
22
23
24
25
26
27
28
29
32
33
34
35
36
1
2
3
4
5
52E3
52D3
52C
52B
56E
31
70
54
41A
63
61
65
42
37A
55
47
43
34
33
58
36
57B
57C
66
67
PP
N
E

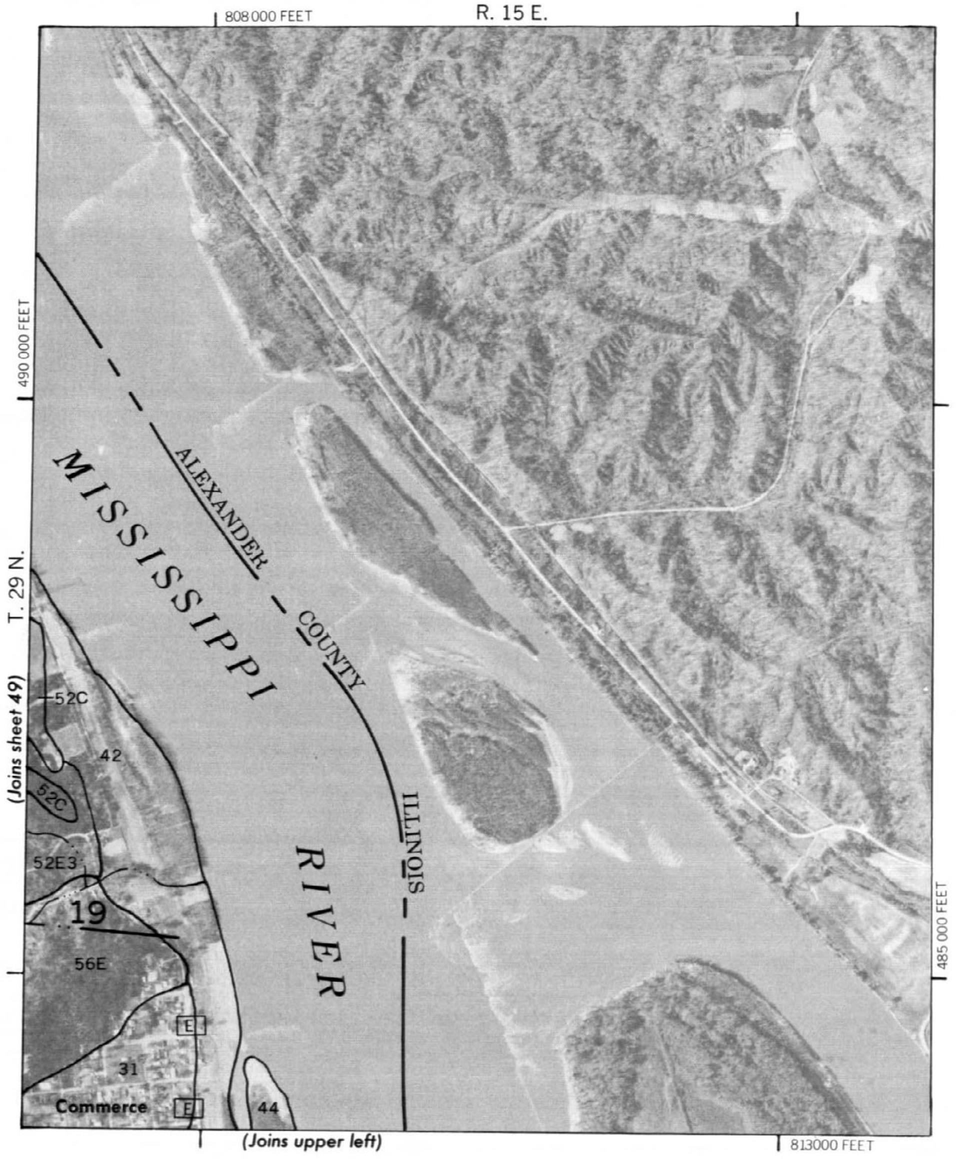
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

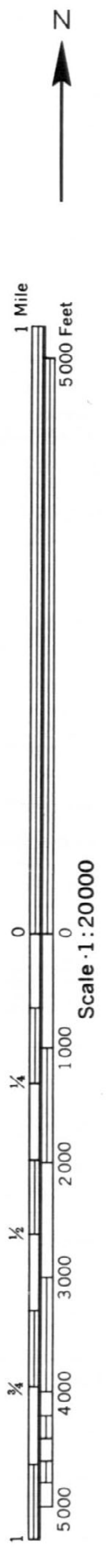
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 54

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 55

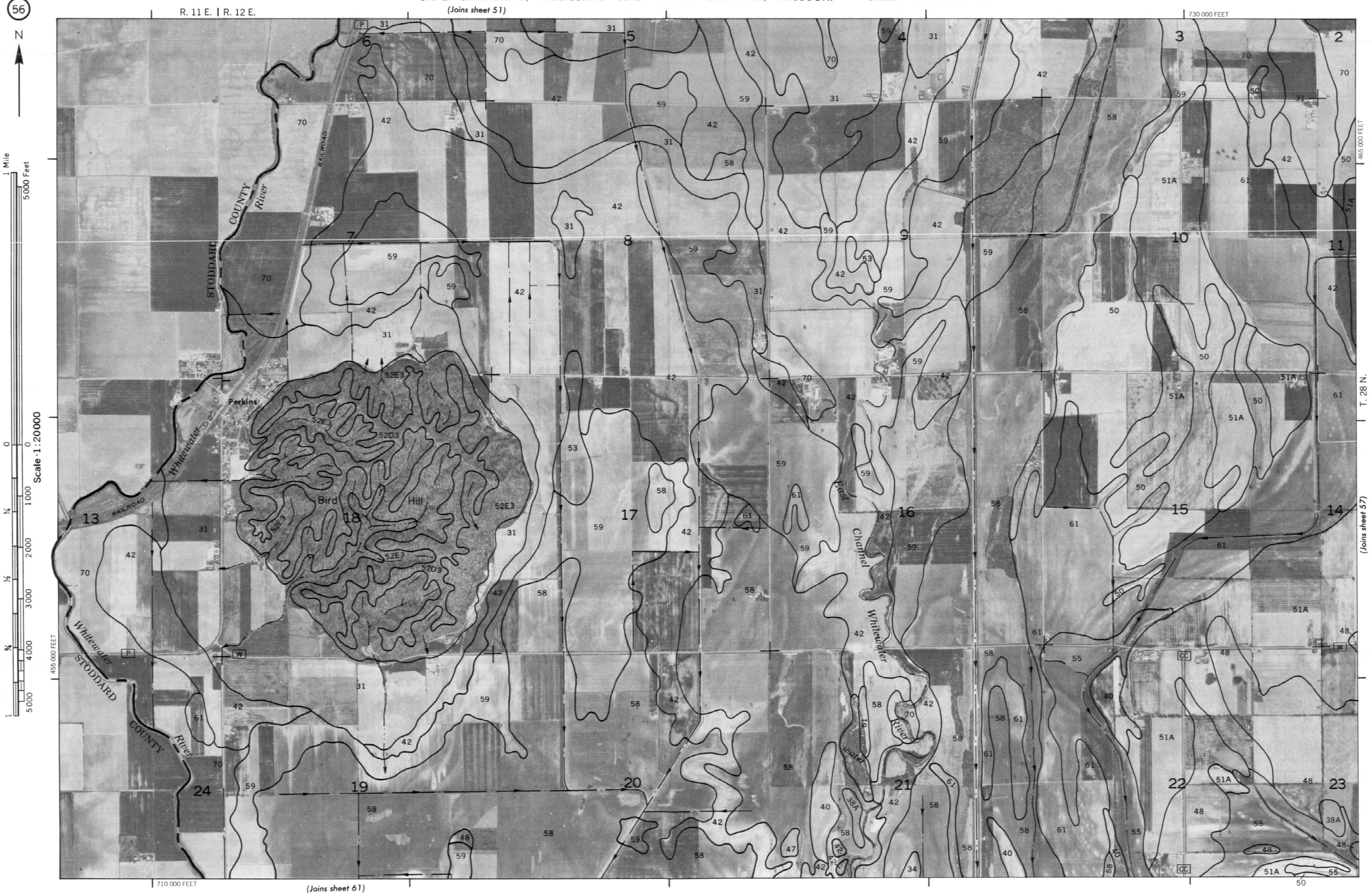
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.


(Joins inset)
810 000 FEET
R. 15 E.
480 000 FEET
470 000 FEET
820 000 FEET
(Joins sheet 54)
(Joins sheet 60)
T. 29 N.
T. 28 N.
Commerce
MISSISSIPPI RIVER
ALEXANDER COUNTY
ILLINOIS
DOOLAN CHUTE
POWERS ISLAND
Ross Lake
19
30
31
32
4
5
6
7
8
9
31
37A
41A
42
43
44
54
55
62
63
65
67


808 000 FEET
R. 15 E.
490 000 FEET
485 000 FEET
813000 FEET
T. 29 N.
(Joins sheet 49)
(Joins upper left)
MISSISSIPPI RIVER
ALEXANDER COUNTY
ILLINOIS
Commerce
19
31
42
44
52C
52E3
56E


N
1 Mile
5000 Feet
0
¼
½
¾
1
1000
2000
3000
4000
5000
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 56

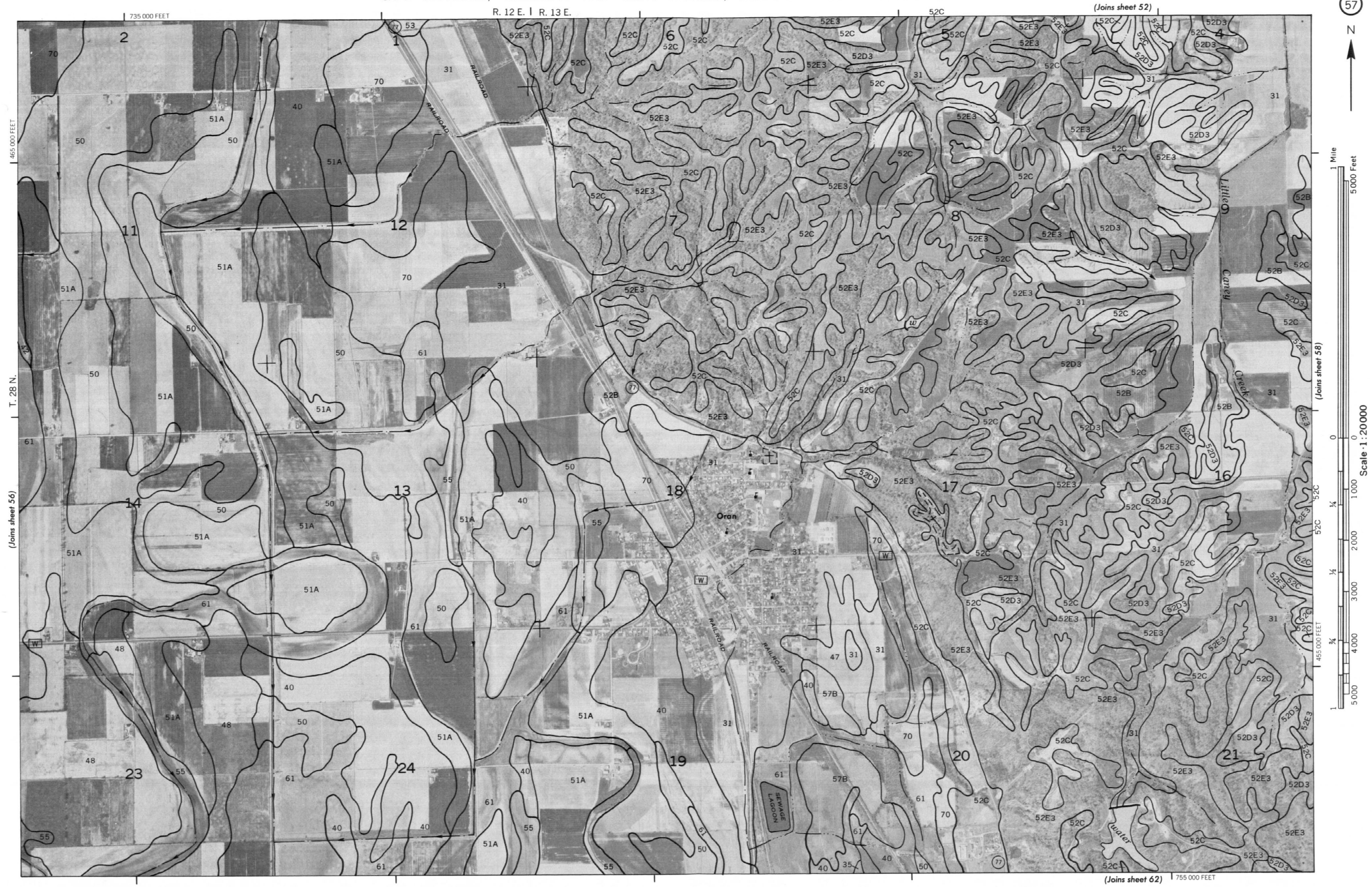


56
N
R. 11 E.
R. 12 E.
(Joins sheet 51)
730 000 FEET
465 000 FEET
T. 28 N.
(Joins sheet 57)
(Joins sheet 61)
710 000 FEET
455 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
STODDARD COUNTY
River
Whitewater
RAILROAD
Perkins
Bird Hill
East Channel Whitewater
Whitewater River
STODDARD COUNTY River
P
W
CC
2
3
4
5
6
7
8
9
10
11
13
14
15
16
17
18
19
20
21
22
23
24
31
34
38A
40
42
47
48
50
51A
52D3
52E3
53
55
58
59
61
70

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 56

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 57

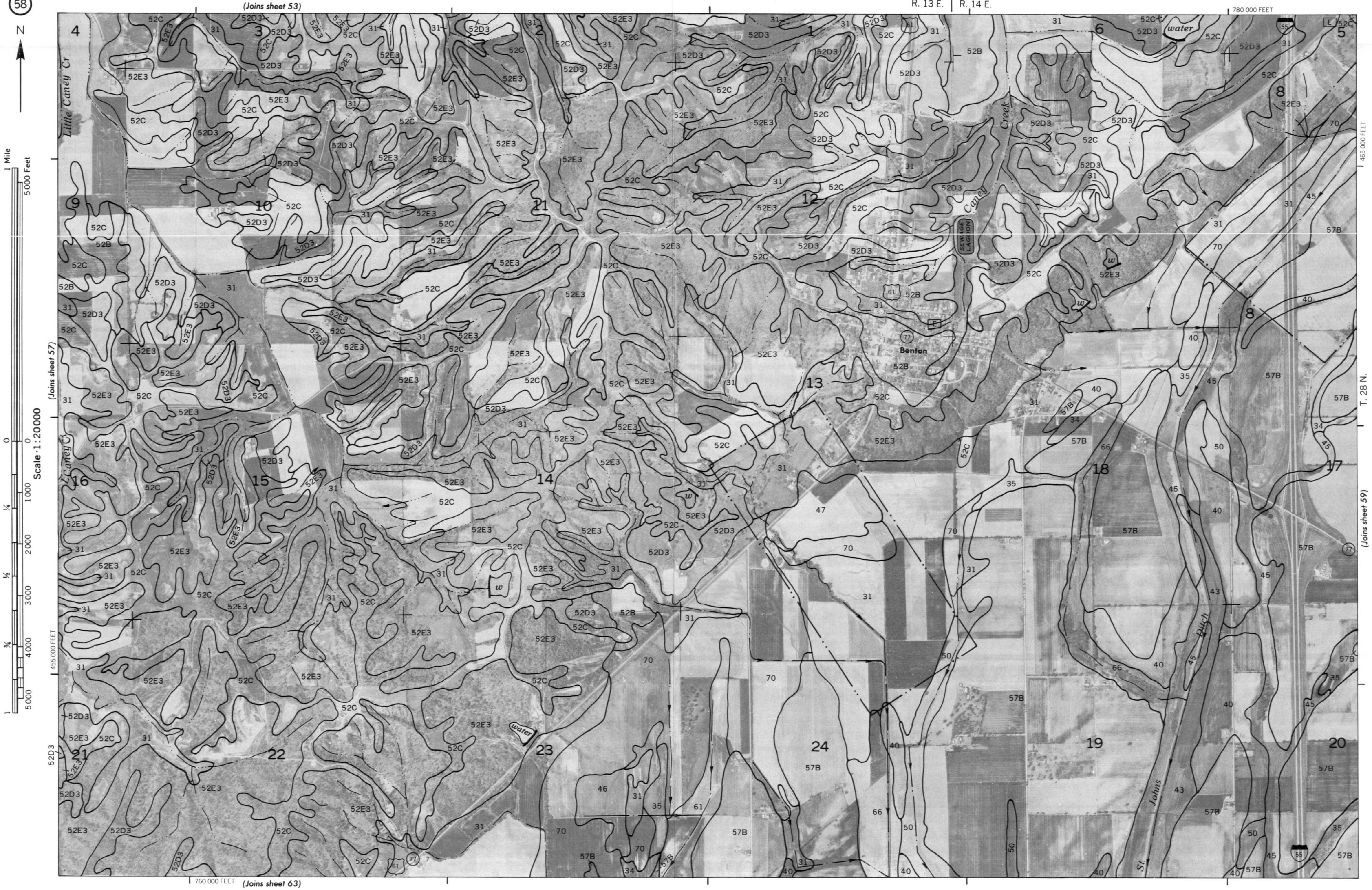

57
N
735 000 FEET
R. 12 E.
R. 13 E.
(Joins sheet 52)
(Joins sheet 56)
(Joins sheet 58)
(Joins sheet 62)
755 000 FEET
465 000 FEET
455 000 FEET
T. 28 N.
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
RAILROAD
Oran
SEWAGE LAGOON
Little Caney Creek
water
1
2
4
5
6
7
8
9
11
12
13
14
16
17
18
19
20
21
23
24
31
35
40
47
48
50
51A
52B
52C
52D3
52E3
53
55
57B
61
70
77
W

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 57

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

58

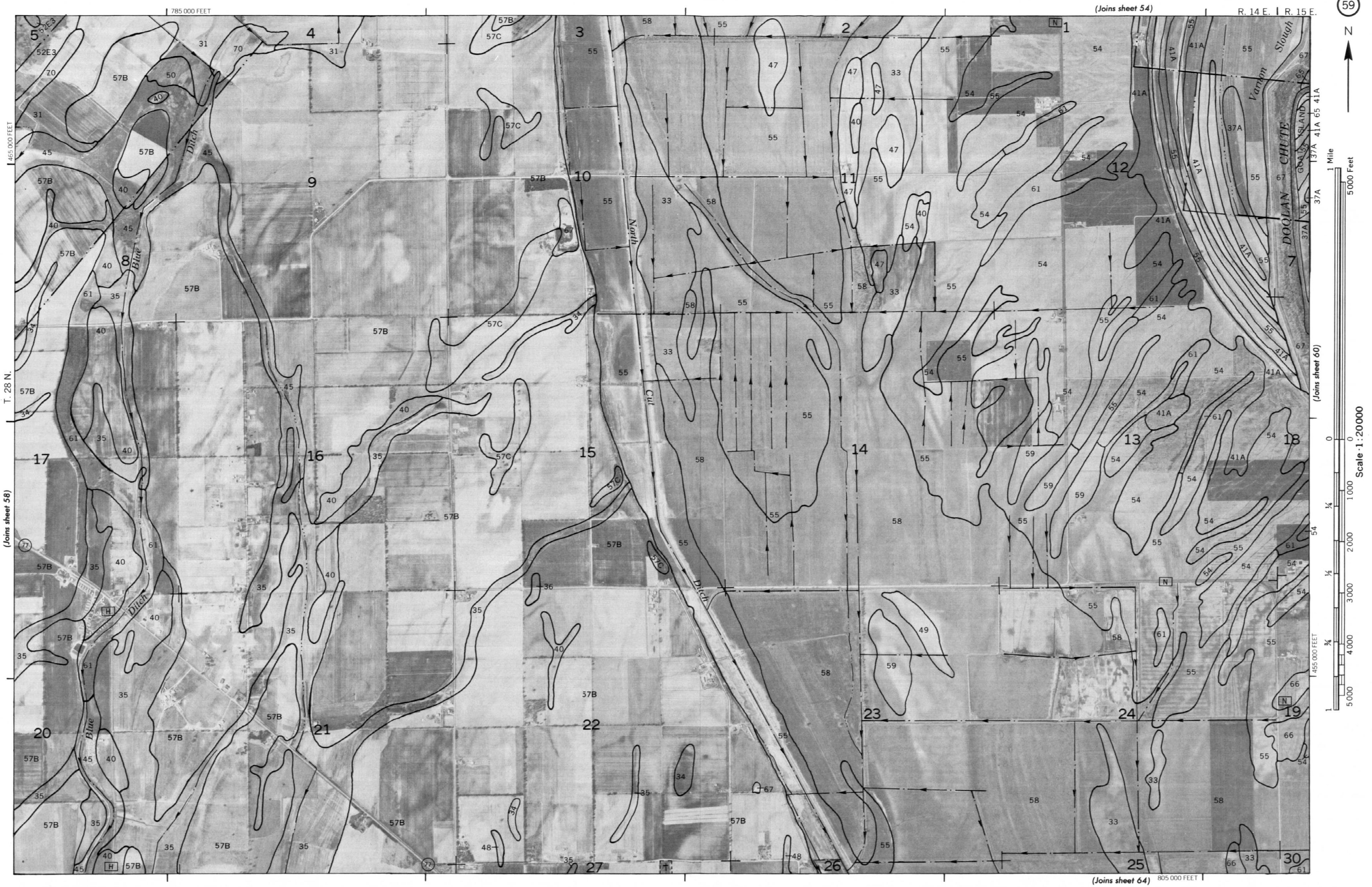
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 58


(Joins sheet 53)
R. 13 E.
R. 14 E.
780 000 FEET
465 000 FEET
(Joins sheet 57)
(Joins sheet 59)
(Joins sheet 63)
760 000 FEET
455 000 FEET
T. 28 N.
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
Little Caney Cr
Caney Cr
Caney Creek
Benton
SEWAGE LAGOON
water
St. Johns Ditch
52C
52B
52D3
52E3
31
34
35
40
43
45
46
47
50
57B
61
66
70
w
55
61
77

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 58

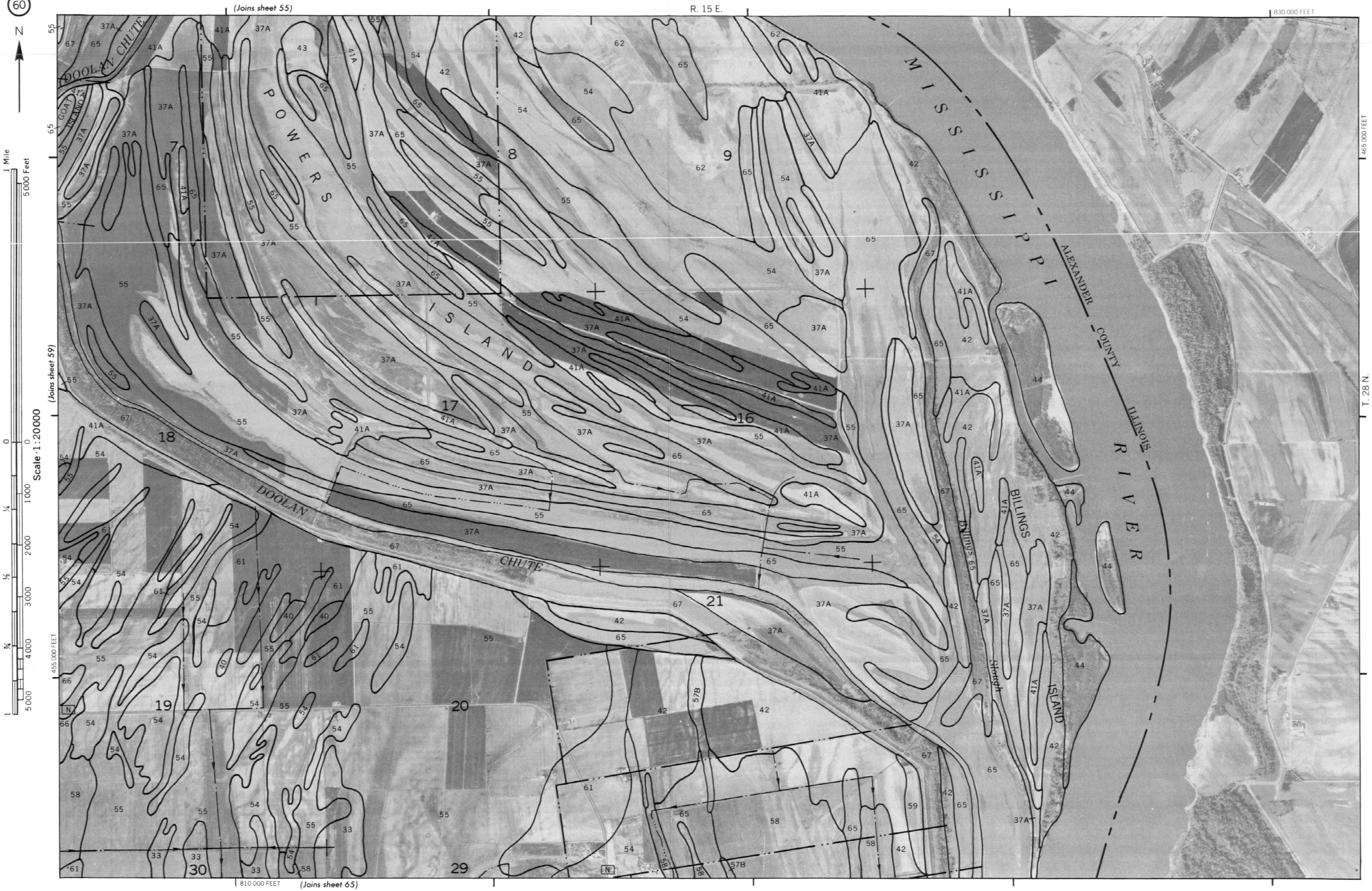
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 59


59
N
(Joins sheet 54)
(Joins sheet 58)
(Joins sheet 60)
(Joins sheet 64)
785 000 FEET
805 000 FEET
465 000 FEET
455 000 FEET
R. 14 E.
R. 15 E.
T. 28 N.
North Cut Ditch
Blue Ditch
Ditch
Varnon Slough
DOOLAN CHUTE
ISLAND
1 Mile
5000 Feet
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 59

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

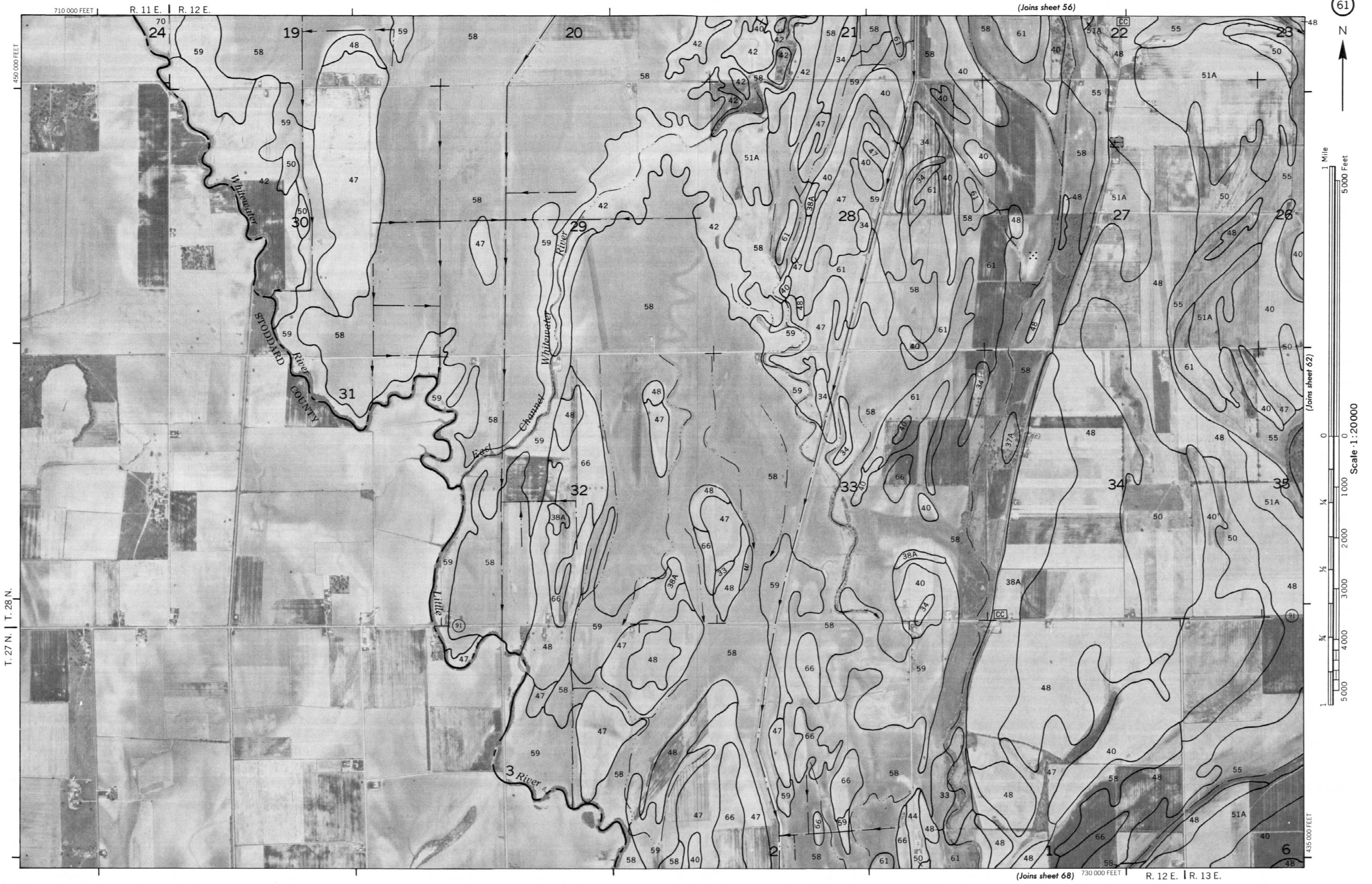
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 60


N
(Joins sheet 55)
R. 15 E.
830 000 FEET
465 000 FEET
(Joins sheet 59)
T. 28 N.
455 000 FEET
810 000 FEET
(Joins sheet 65)
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
DOOLAN CHUTE
GOAT ISLAND
POWERS ISLAND
MISSISSIPPI RIVER
ALEXANDER COUNTY ILLINOIS
BILLINGS ISLAND
Billings Slough
7
8
9
16
17
18
19
20
21
29
30
37A
41A
33
40
42
43
44
54
55
57B
58
59
61
62
65
66
67
N

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 60

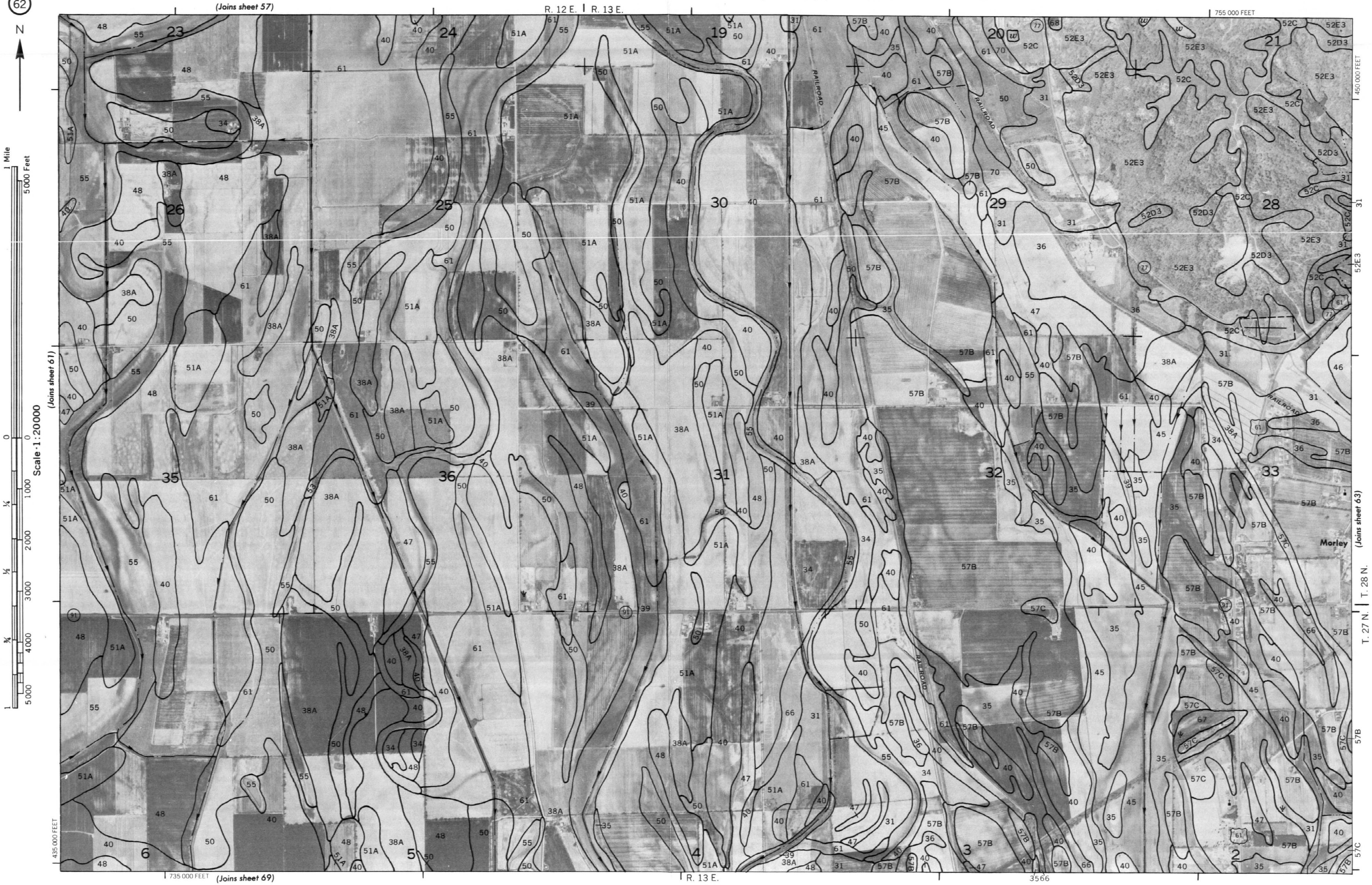
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 61


61
(Joins sheet 56)
(Joins sheet 62)
(Joins sheet 68)
R. 11 E. | R. 12 E.
R. 12 E. | R. 13 E.
T. 28 N.
T. 27 N.
710 000 FEET
730 000 FEET
450 000 FEET
435 000 FEET
N
Scale 1:20000
1 Mile
5000 Feet
0
1/4
1/2
3/4
1
1000
2000
3000
4000
5000
Whitewater River
East Whitewater River Channel
Little River
STODDARD COUNTY
CC
91

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 61

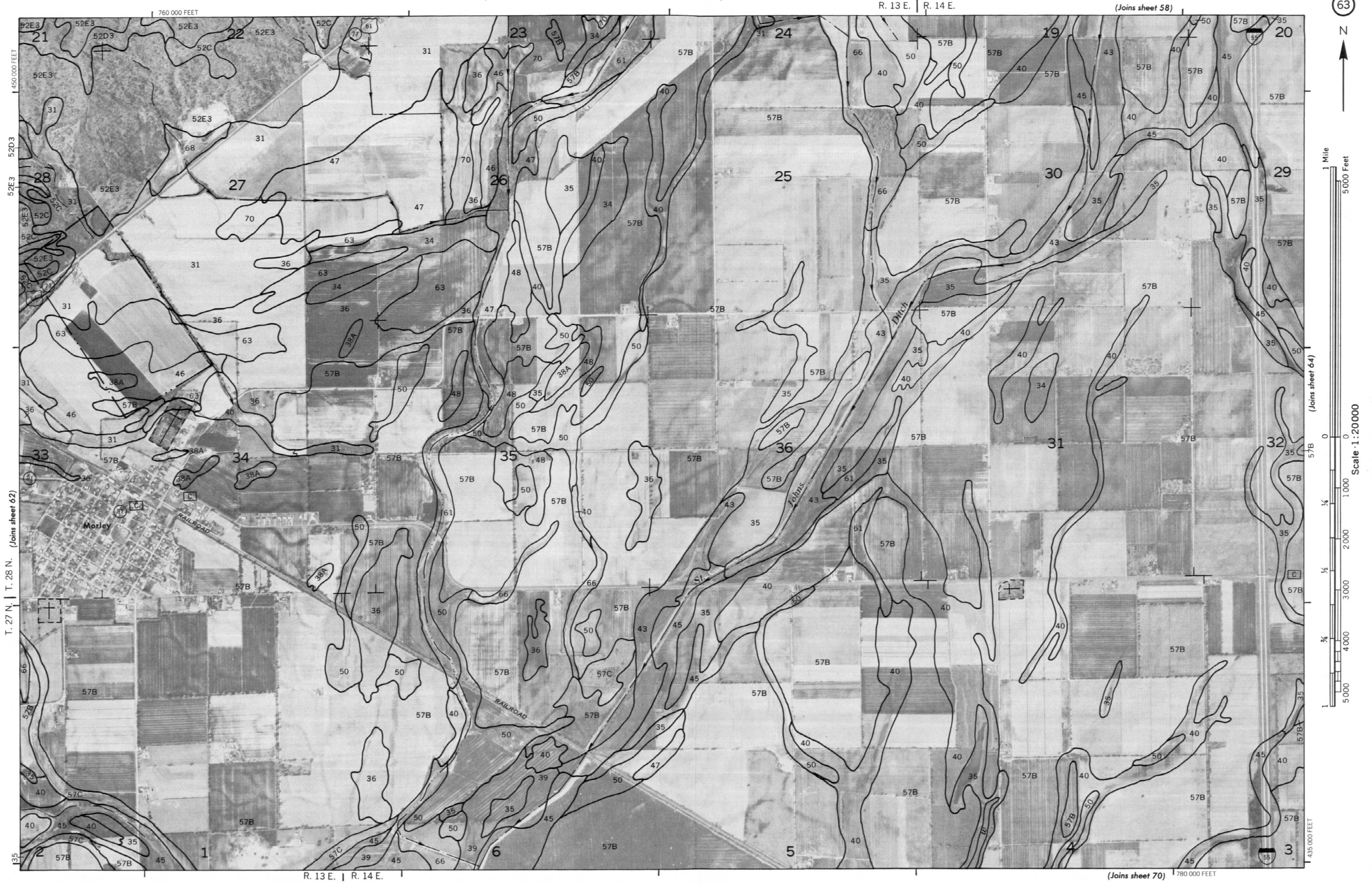
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 62


62
N
(Joins sheet 57)
R. 12 E.
R. 13 E.
755 000 FEET
450 000 FEET
(Joins sheet 61)
(Joins sheet 63)
(Joins sheet 69)
735 000 FEET
435 000 FEET
3566
T. 28 N.
T. 27 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
23
24
19
20
21
26
25
30
29
28
35
36
31
32
33
6
5
4
3
2
Morley
RAILROAD
61
77
91
W
31
34
35
36
38A
39
40
45
46
47
48
50
51A
52C
52D3
52E3
55
57B
57C
61
66
67
68
70

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

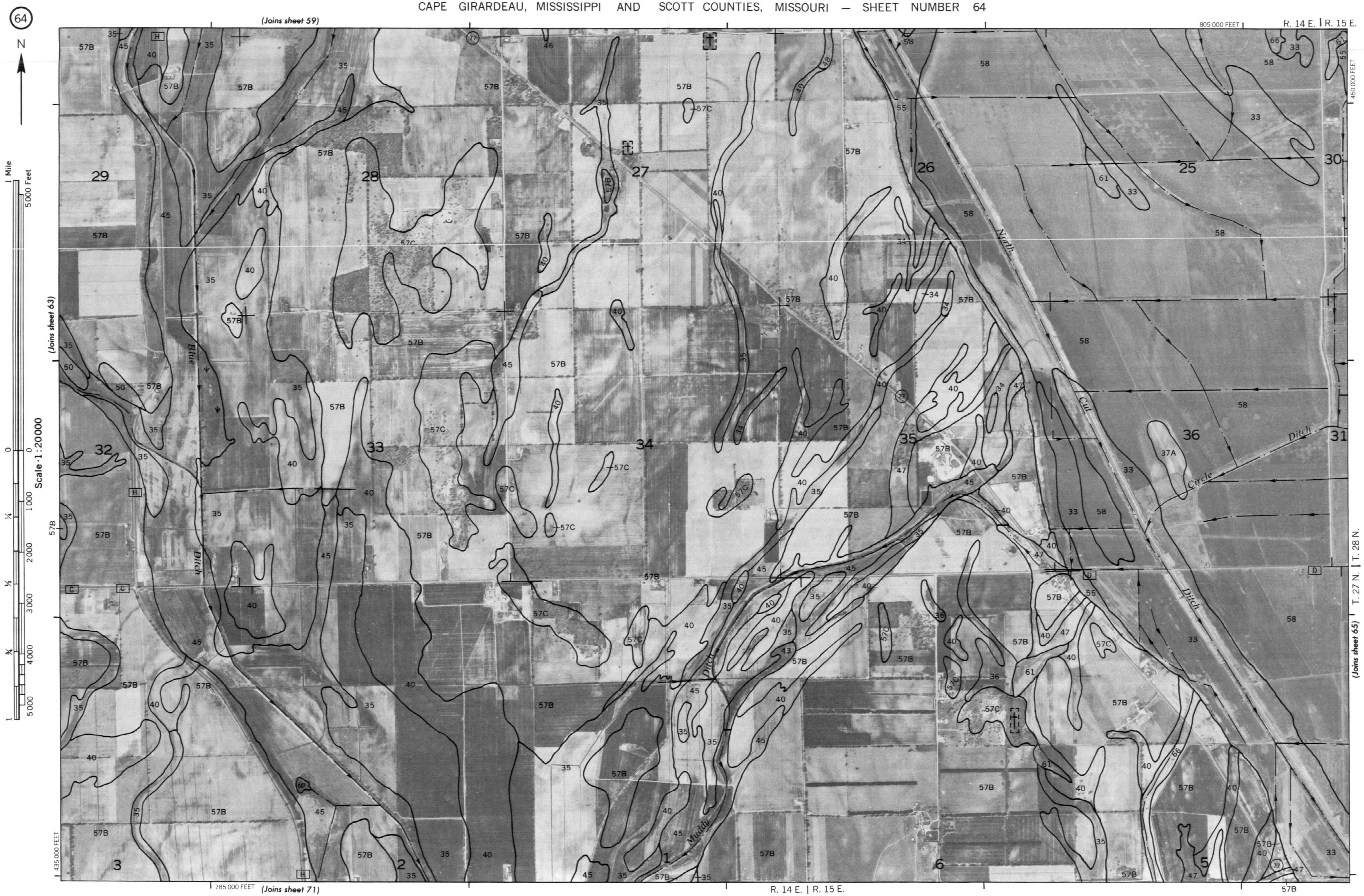
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 62


63
N
760 000 FEET
R. 13 E. | R. 14 E.
(Joins sheet 58)
450 000 FEET
52D3
52E3
(Joins sheet 62)
T. 28 N.
T. 27 N.
(Joins sheet 64)
(Joins sheet 70)
780 000 FEET
435 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
21
22
23
24
19
20
28
27
26
25
30
29
33
34
35
36
31
32
2
1
6
5
4
3
Morley
RAILROAD
Johns Ditch
61
77
55
C
52E3
52D3
52C
31
68
47
70
63
36
34
46
38A
57B
40
50
48
35
61
66
43
45
39
47
57C
35

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES. MISSOURI NO. 63

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

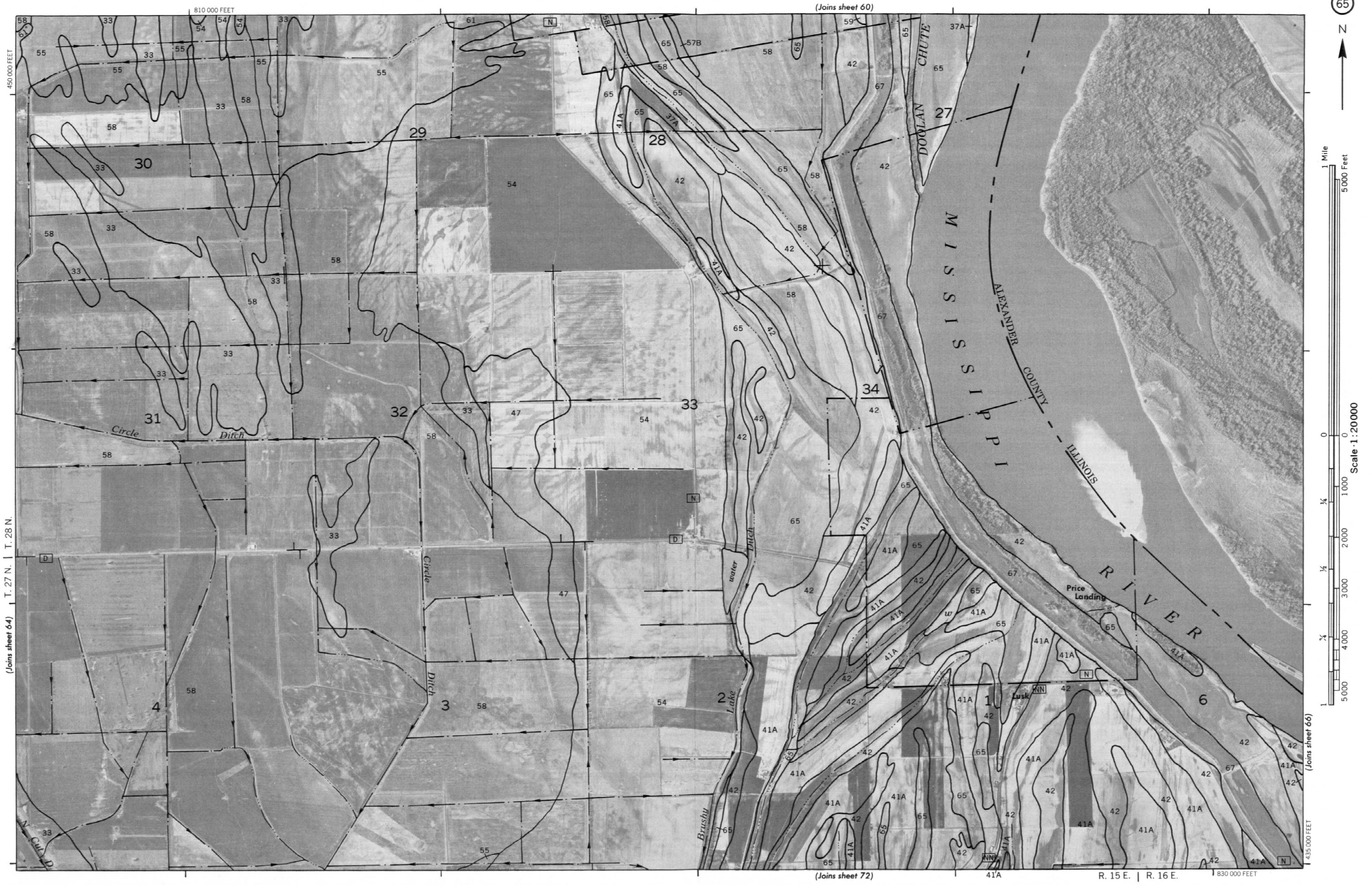
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 64


N
Scale 1:20000
1 Mile
0
¼
½
¾
1
5000 Feet
0
1000
2000
3000
4000
5000
(Joins sheet 59)
(Joins sheet 63)
(Joins sheet 65)
(Joins sheet 71)
805 000 FEET
785 000 FEET
450 000 FEET
435 000 FEET
R. 14 E. | R. 15 E.
T. 27 N. | T. 28 N.
29
28
27
26
25
30
32
33
34
35
36
31
3
2
1
6
5
Blue Ditch
Muddy Ditch
North Cut
Circle Ditch
Ditch
77
H
C
D
57B
57C
35
40
45
58
33
61
47
37A
34
36
43
48
50
55
66
46

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 64

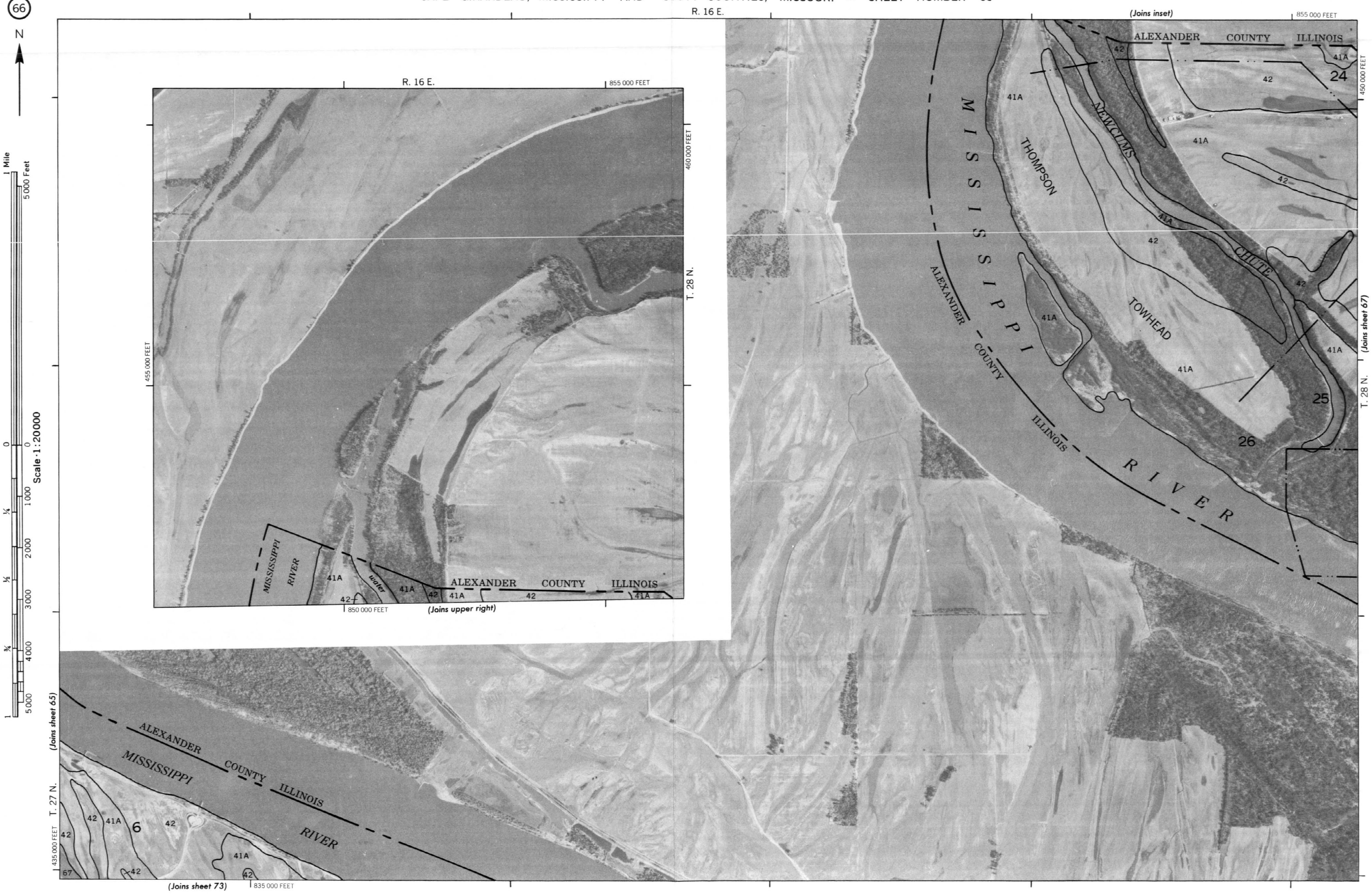
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 65


65
N
810 000 FEET
(Joins sheet 60)
450 000 FEET
435 000 FEET
830 000 FEET
(Joins sheet 64)
(Joins sheet 66)
(Joins sheet 72)
T. 27 N. | T. 28 N.
R. 15 E. | R. 16 E.
1 Mile
5000 Feet
0
1/4
1/2
3/4
1000
2000
3000
4000
5000
Scale 1:20000
MISSISSIPPI RIVER
ALEXANDER COUNTY
ILLINOIS
DOOLAN CHUTE
Circle Ditch
Circle Ditch
Ditch
Brushy Lake
water
Price Landing
Lusk
N. Cut D.
27
28
29
30
31
32
33
34
1
2
3
4
6
33
54
55
58
61
57B
59
37A
65
67
42
41A
47
w
D
N
NN

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 65

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 66


66
N
1 Mile
5 000 Feet
0
0
1000
¼
2000
½
3000
¾
4000
1
5000
Scale 1:20000
R. 16 E.
(Joins inset)
855 000 FEET
450 000 FEET
460 000 FEET
455 000 FEET
850 000 FEET
(Joins upper right)
ALEXANDER COUNTY ILLINOIS
MISSISSIPPI RIVER
water
THOMPSON
TOWHEAD
NEWCUMS
CHUTE
41A
42
24
25
26
T. 28 N.
(Joins sheet 67)
(Joins sheet 65)
T. 27 N.
6
67
435 000 FEET
(Joins sheet 73)
835 000 FEET

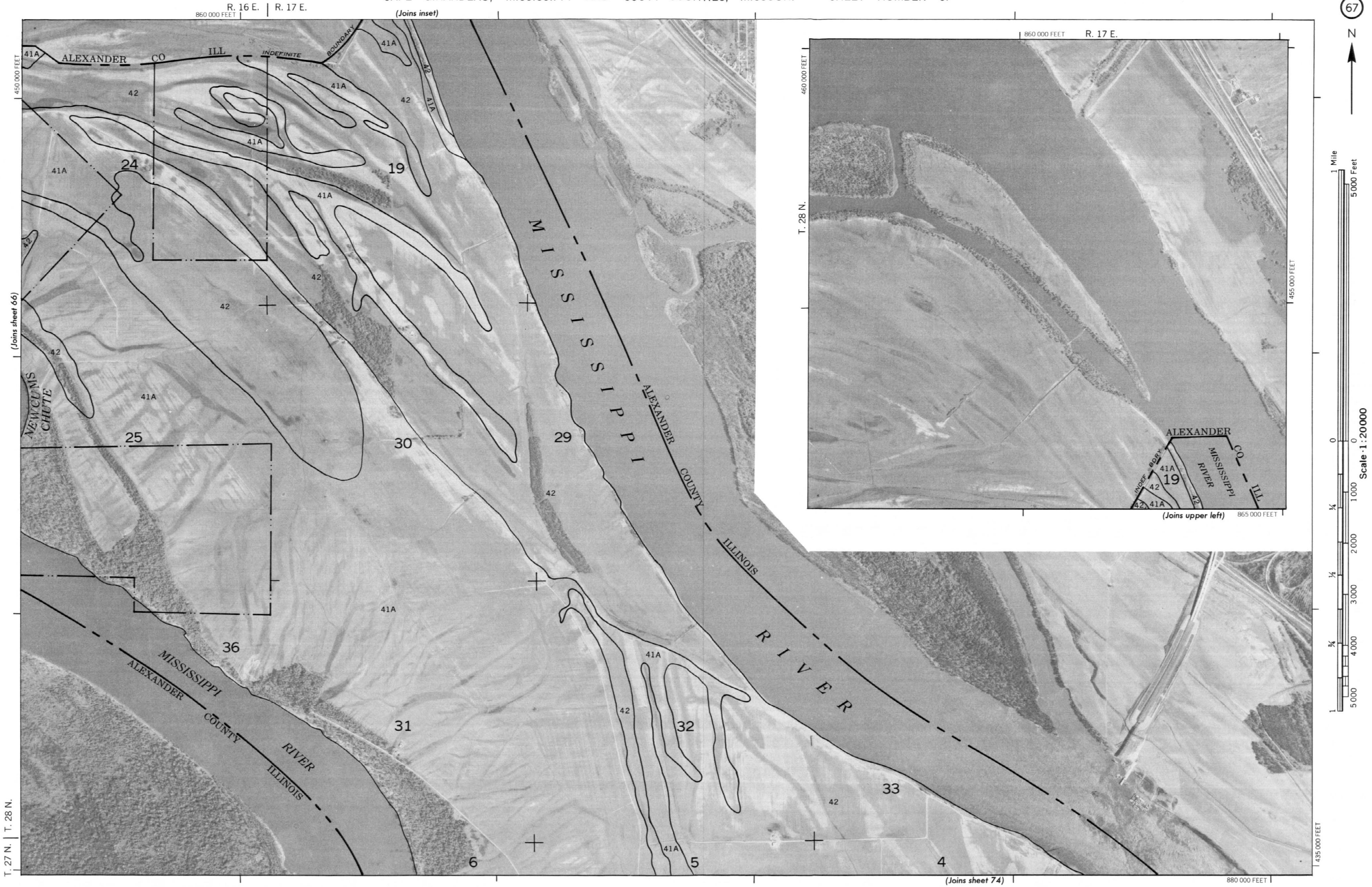
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 66

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 67

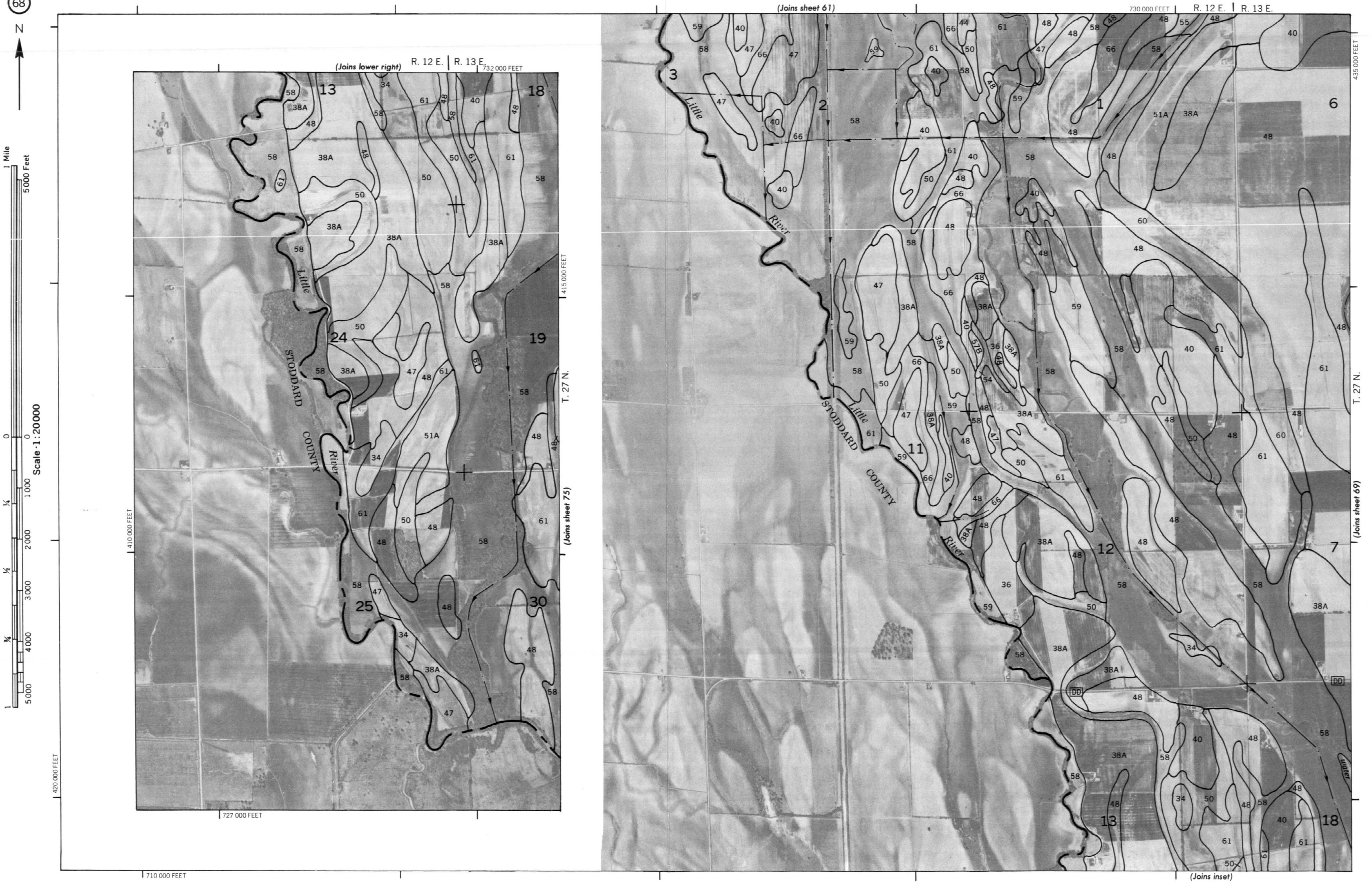
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 67

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



67
N
R. 16 E.
R. 17 E.
860 000 FEET
(Joins inset)
450 000 FEET
(Joins sheet 66)
T. 28 N.
T. 27 N.
435 000 FEET
880 000 FEET
(Joins sheet 74)
ALEXANDER CO ILL INDEFINITE BOUNDARY
41A
42
24
19
25
30
29
36
31
32
33
6
5
4
NEWCUMS CHUTE
MISSISSIPPI RIVER
ALEXANDER COUNTY ILLINOIS
860 000 FEET
R. 17 E.
460 000 FEET
455 000 FEET
865 000 FEET
(Joins upper left)
INDEF BDRY
ALEXANDER CO. ILL.
MISSISSIPPI RIVER
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 68


68
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
(Joins sheet 61)
(Joins lower right)
(Joins sheet 75)
(Joins sheet 69)
(Joins inset)
R. 12 E.
R. 13 E.
T. 27 N.
730 000 FEET
732 000 FEET
435 000 FEET
415 000 FEET
410 000 FEET
420 000 FEET
727 000 FEET
710 000 FEET
Little River
STODDARD COUNTY
Little
Water
DD
1
2
3
6
7
11
12
13
18
19
24
25
30
34
36
38A
40
44
47
48
50
51A
54
55
57B
58
59
60
61
66

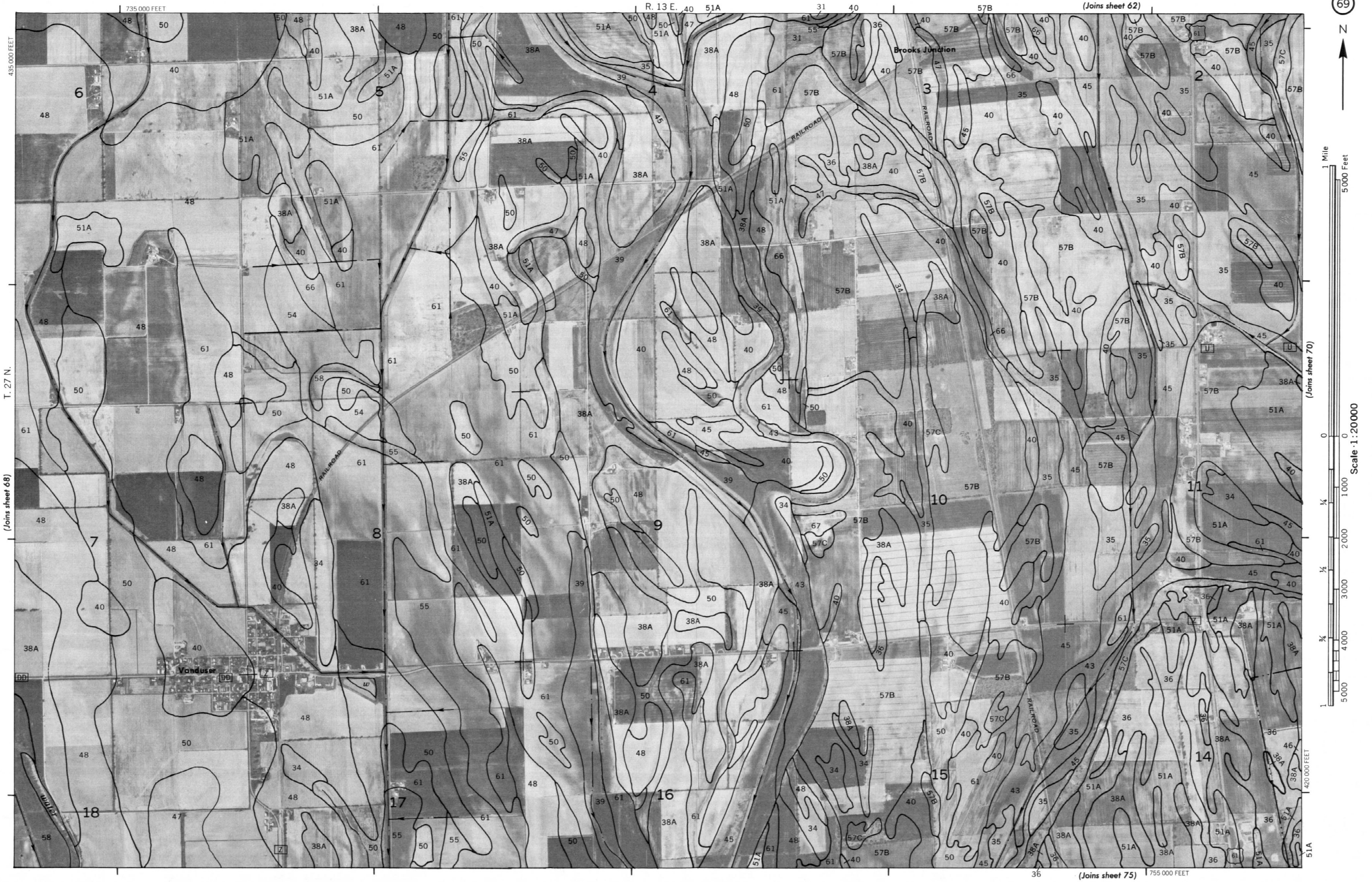
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 68

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 69

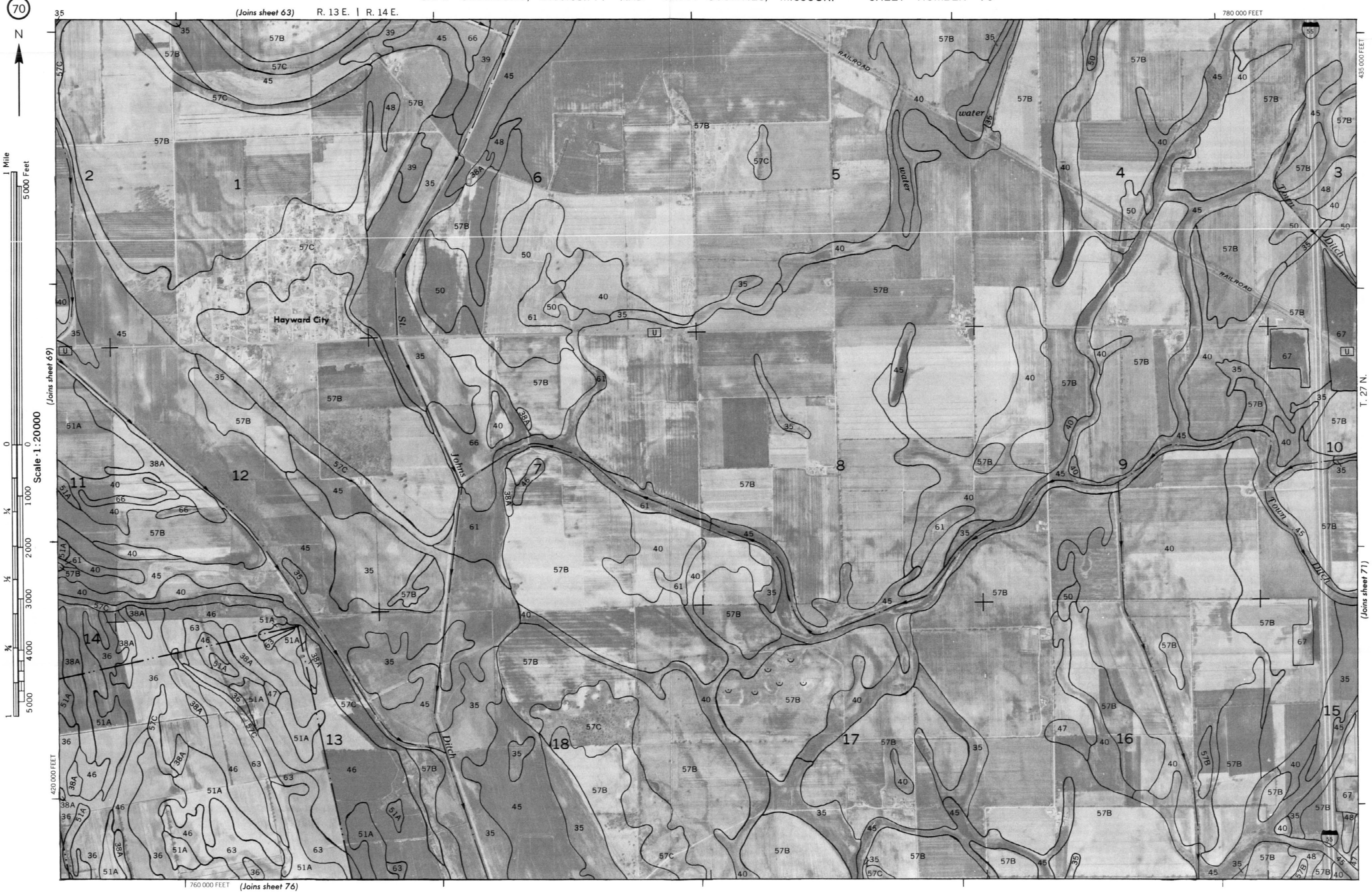
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 69

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



69
N
735 000 FEET
R. 13 E.
(Joins sheet 62)
435 000 FEET
T. 27 N.
(Joins sheet 68)
(Joins sheet 70)
(Joins sheet 75)
755 000 FEET
420 000 FEET
Brooks Junction
Vanduser
RAILROAD
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 70

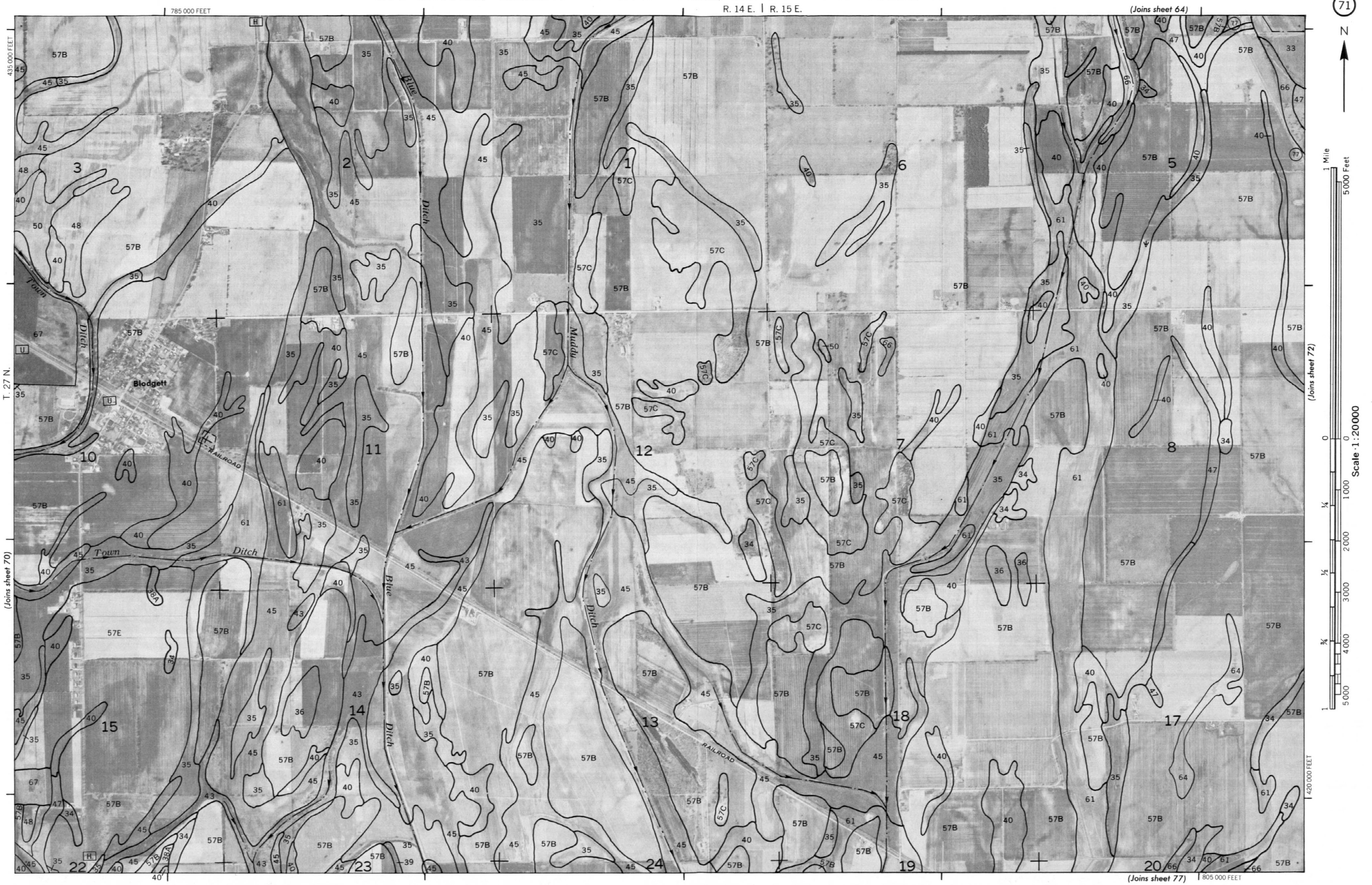


70
N
1 Mile
5 000 Feet
0
1000
2000
3000
4000
5 000
¼
½
¾
1
Scale 1:20000
35
(Joins sheet 63)
R. 13 E. | R. 14 E.
780 000 FEET
435 000 FEET
T. 27 N.
(Joins sheet 69)
(Joins sheet 71)
(Joins sheet 76)
760 000 FEET
420 000 FEET
Hayward City
RAILROAD
St. Johns Ditch
Town Ditch
water
U
55
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
35
36
38A
39
40
45
46
47
48
50
51A
57B
57C
61
63
66
67

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 70

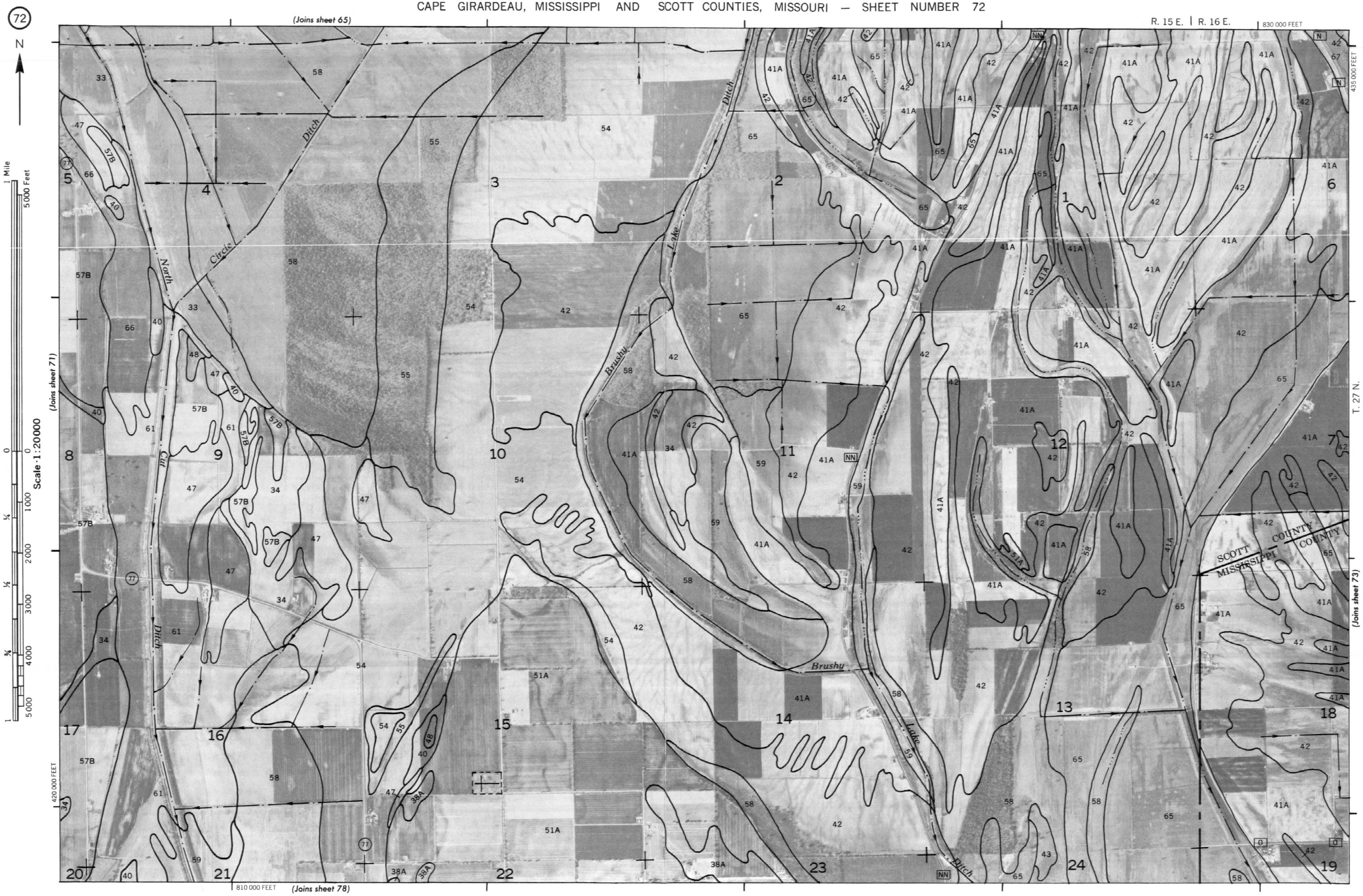
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 71


785 000 FEET
R. 14 E. | R. 15 E.
(Joins sheet 64)
71
N
435 000 FEET
T. 27 N.
(Joins sheet 70)
(Joins sheet 72)
(Joins sheet 77)
420 000 FEET
805 000 FEET
Blodgett
Town Ditch
Blue Ditch
Muddy Ditch
RAILROAD
1 Mile
5000 Feet
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 71

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 72


72
N
(Joins sheet 65)
(Joins sheet 71)
(Joins sheet 73)
(Joins sheet 78)
R. 15 E.
R. 16 E.
830 000 FEET
435 000 FEET
420 000 FEET
810 000 FEET
T. 27 N.
1 Mile
5 000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
North Cut Ditch
Circle Ditch
Brushy Lake Ditch
Brushy
Lake
Ditch
SCOTT COUNTY
MISSISSIPPI COUNTY
77
NN
N
O
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
33
34
38A
40
41A
42
43
47
48
51A
54
55
57B
58
59
61
65
66
67

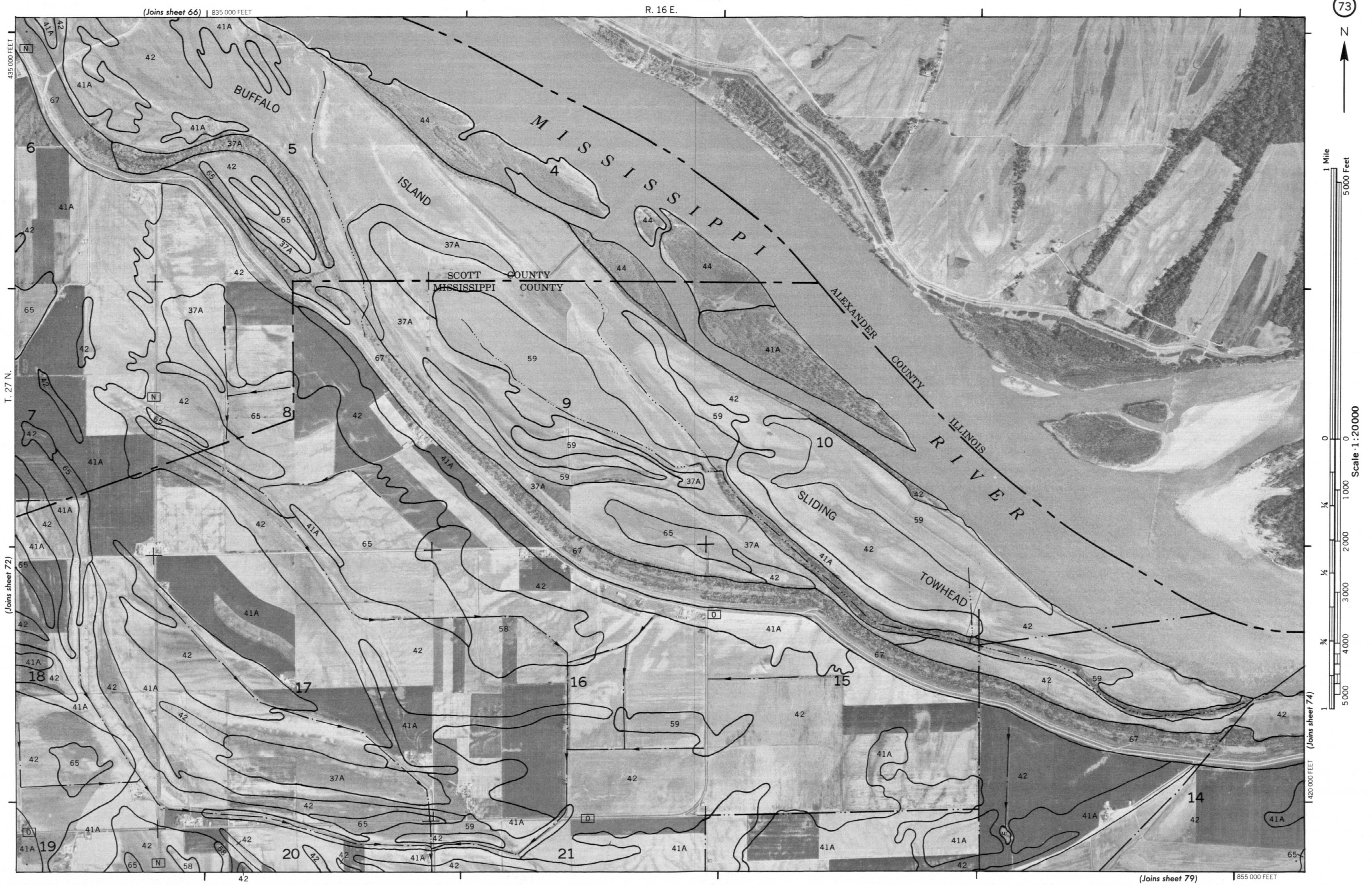
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 72

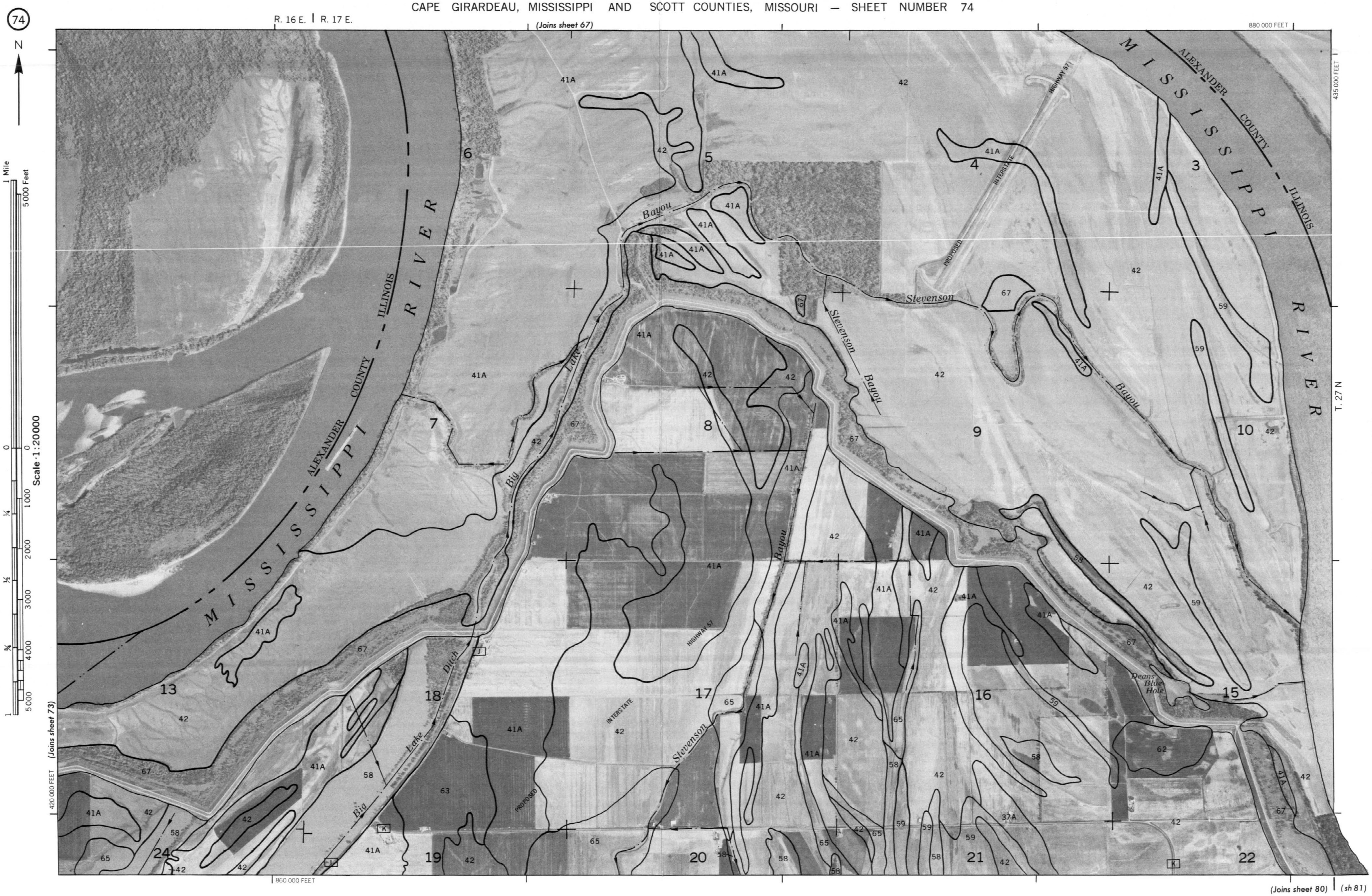
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 73

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 73

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.


(Joins sheet 66)
835 000 FEET
R. 16 E.
73
N
435 000 FEET
T. 27 N.
(Joins sheet 72)
(Joins sheet 74)
(Joins sheet 79)
855 000 FEET
420 000 FEET
BUFFALO
ISLAND
MISSISSIPPI
RIVER
SCOTT COUNTY
MISSISSIPPI COUNTY
ALEXANDER COUNTY
ILLINOIS
SLIDING
TOWHEAD
4
5
6
7
8
9
10
14
15
16
17
18
19
20
21
37A
41A
42
44
58
59
65
67
1 Mile
5 000 Feet
0
¼
½
¾
1
1000
2000
3000
4000
5000
Scale 1:20000

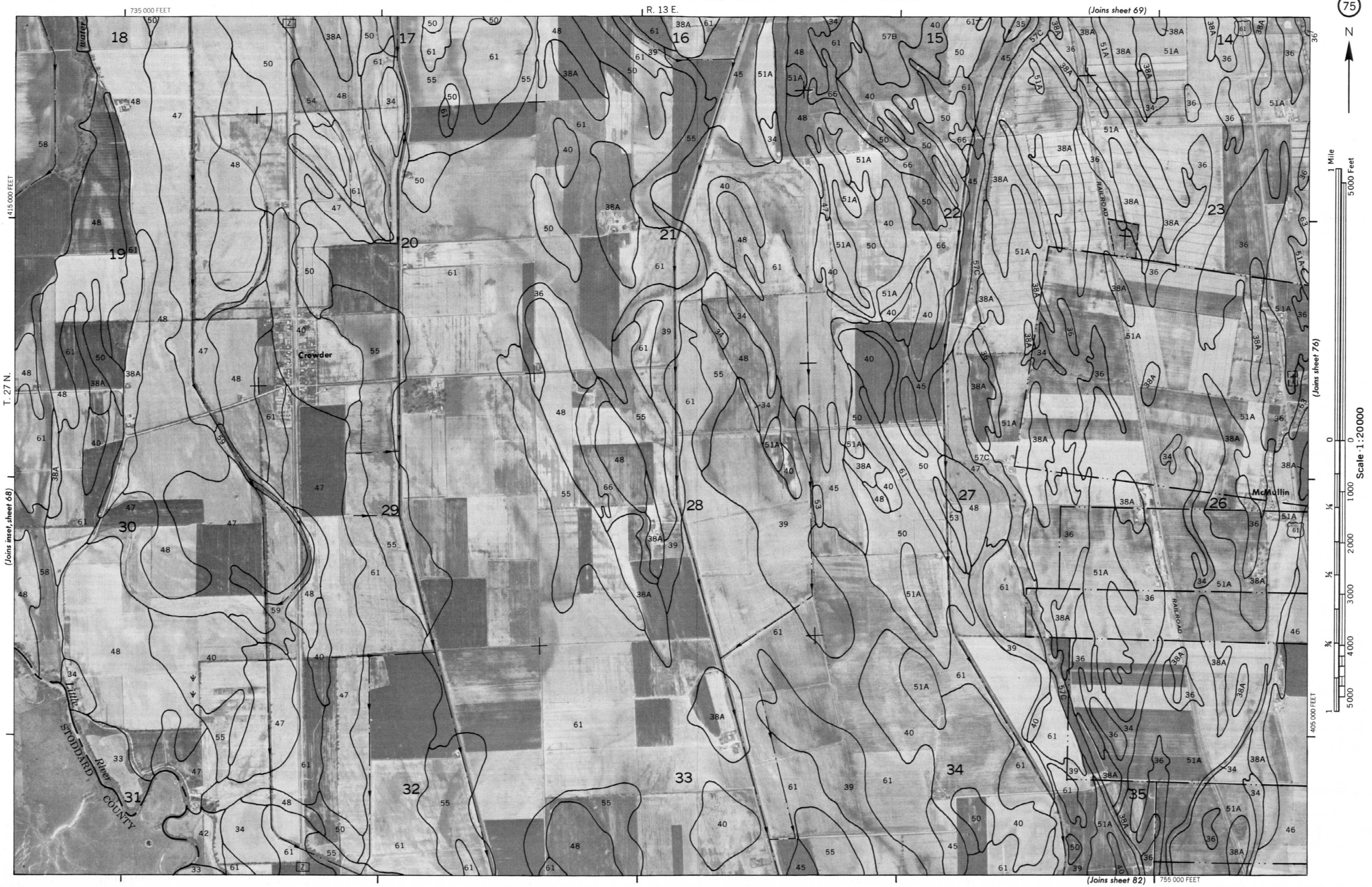
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 74


74
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
R. 16 E.
R. 17 E.
(Joins sheet 67)
880 000 FEET
435 000 FEET
T. 27 N
(Joins sheet 73)
420 000 FEET
860 000 FEET
(Joins sheet 80)
(sh 81)
MISSISSIPPI RIVER
ALEXANDER COUNTY
ILLINOIS
Bayou
Stevenson Bayou
Big Lake Ditch
Big Lake
Deans Blue Hole
HIGHWAY 57
PROPOSED INTERSTATE
J
K
3
4
5
6
7
8
9
10
13
15
16
17
18
19
20
21
22
24
37A
41A
42
58
59
62
63
65
67

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 74

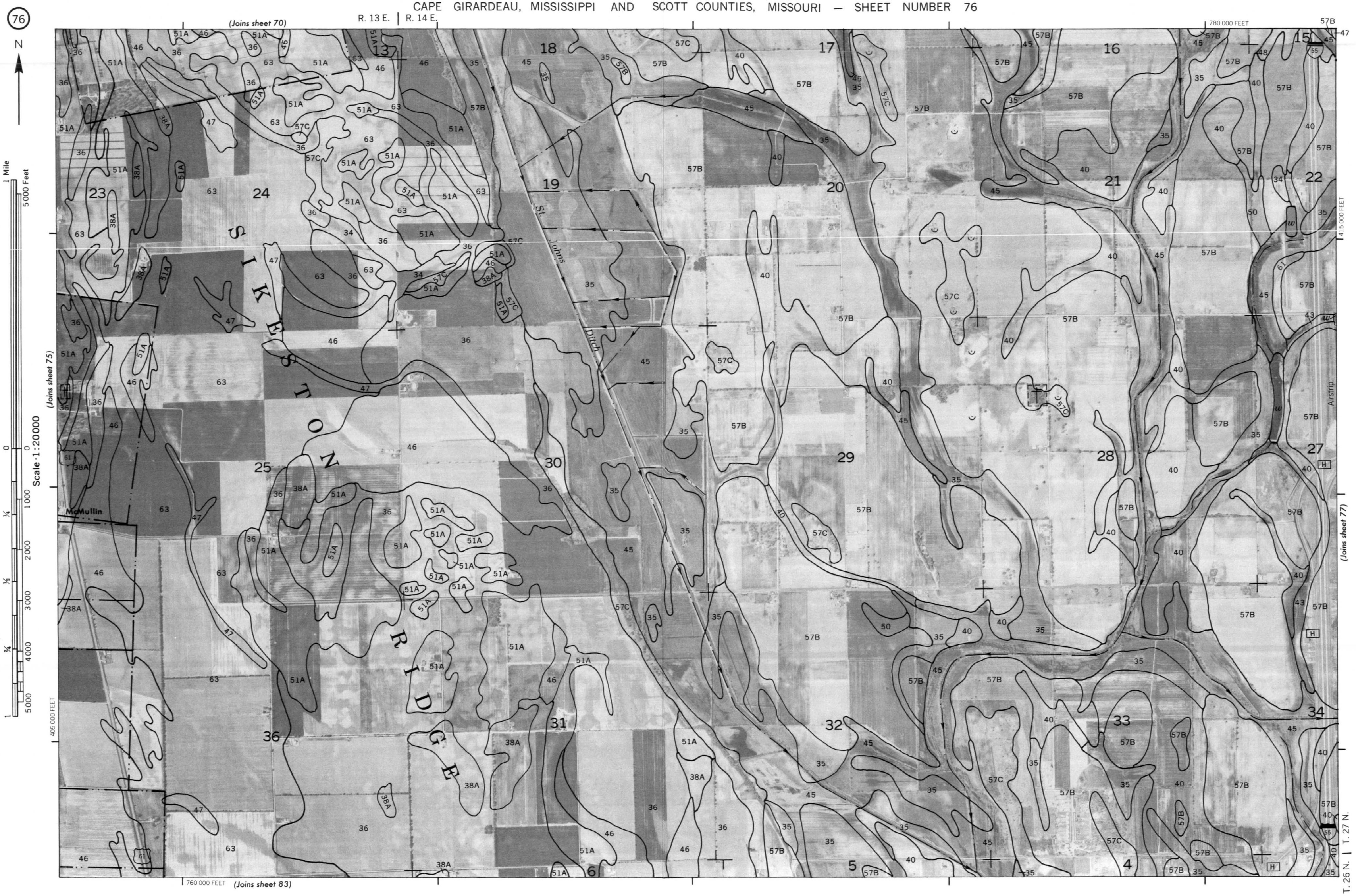
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 75


75
N
735 000 FEET
R. 13 E.
(Joins sheet 69)
415 000 FEET
T. 27 N.
(Joins inset, sheet 68)
(Joins sheet 76)
405 000 FEET
(Joins sheet 82)
755 000 FEET
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
Scale 1:20000
water
Crowder
McMullin
RAILROAD
Little River
STODDARD COUNTY
18
17
16
15
14
19
20
21
22
23
30
29
28
27
26
31
32
33
34
35
34
36
38A
39
40
42
45
46
47
48
50
51A
53
54
55
57B
57C
58
59
61
63
66

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 75

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 76

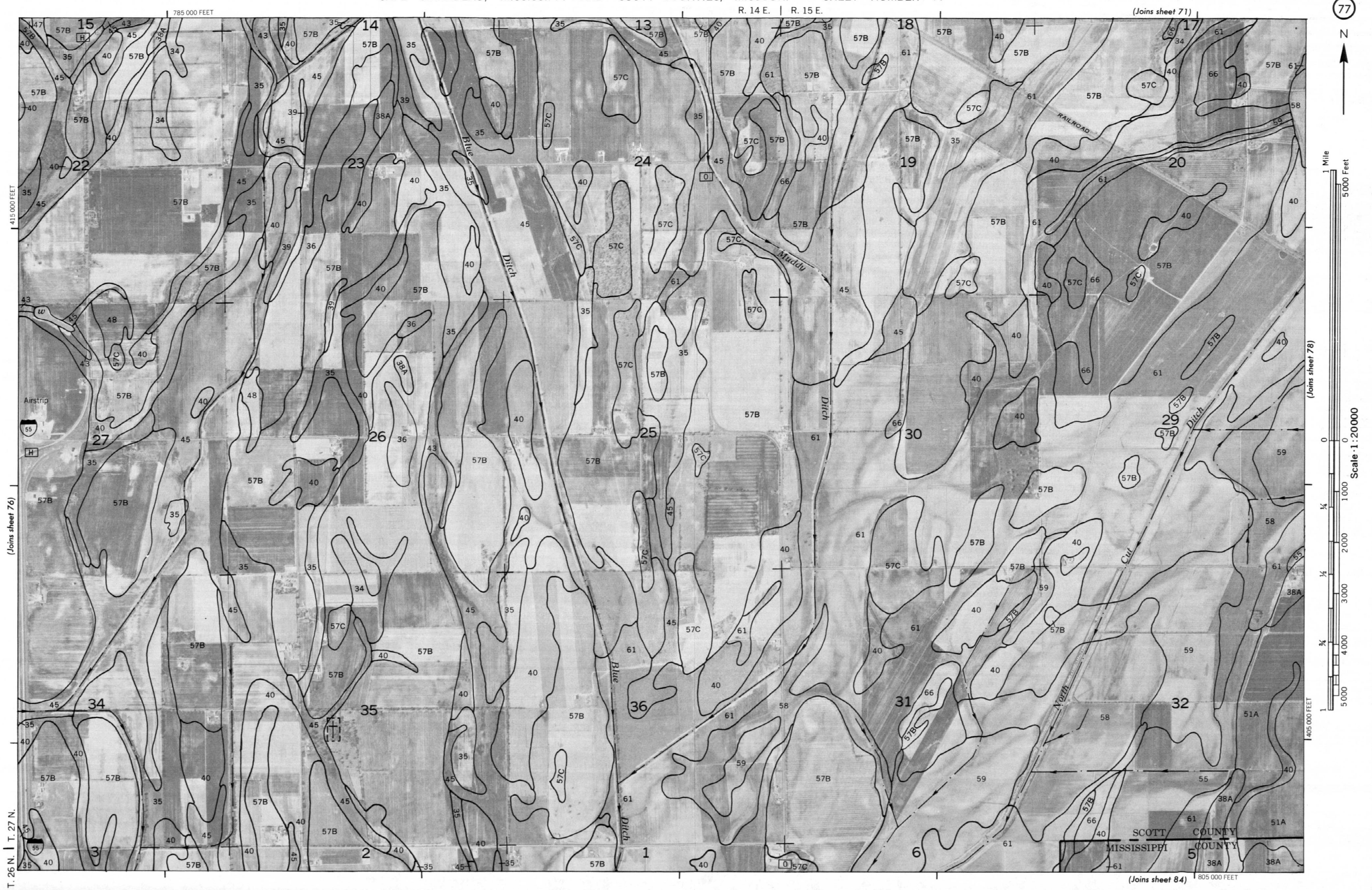


76
N
(Joins sheet 70)
R. 13 E.
R. 14 E.
780 000 FEET
(Joins sheet 75)
(Joins sheet 77)
(Joins sheet 83)
760 000 FEET
405 000 FEET
415 000 FEET
1 Mile
5 000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
SIKESTON RIDGE
St. Johns Ditch
McMullin
Airstrip
T. 26 N.
T. 27 N.
13
15
16
17
18
19
20
21
22
23
24
25
27
28
29
30
31
32
33
34
36
4
5
6
34
35
36
38A
40
43
45
46
47
48
50
51A
55
57B
57C
61
63
H
w

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 76

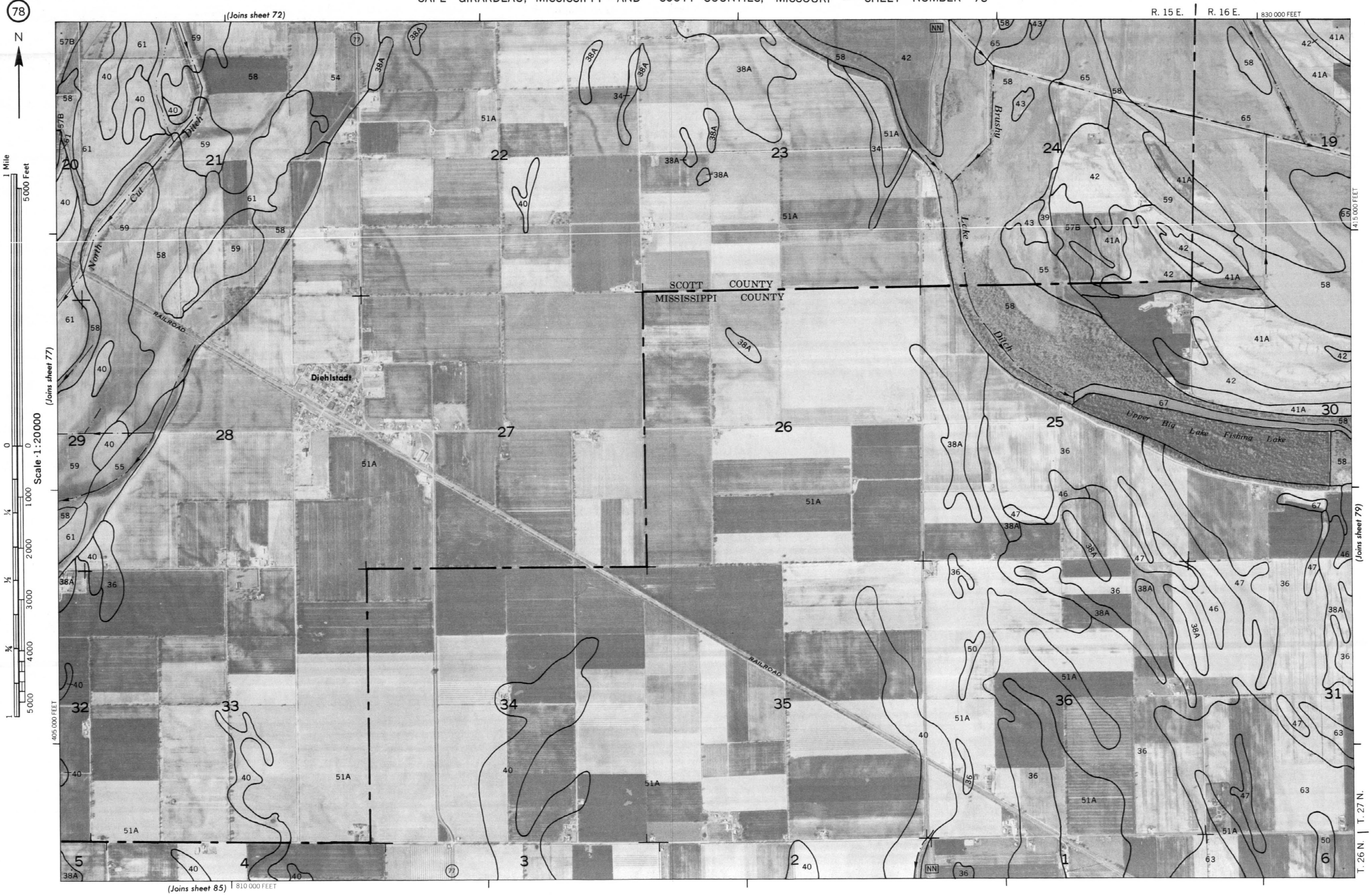
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 77


77
785 000 FEET
R. 14 E. | R. 15 E.
(Joins sheet 71)
415 000 FEET
405 000 FEET
805 000 FEET
(Joins sheet 76)
(Joins sheet 78)
(Joins sheet 84)
T. 27 N.
T. 26 N.
N
1 Mile
5000 Feet
Scale 1:20000
0 ¼ ½ ¾ 1
0 1000 2000 3000 4000 5000
Blue Ditch
Muddy Ditch
North Cut Ditch
RAILROAD
Airstrip
55
H
w
O
SCOTT COUNTY
MISSISSIPPI COUNTY
15 14 13 18 17
22 23 24 19 20
27 26 25 30 29
34 35 36 31 32
3 2 1 6 5

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 77

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

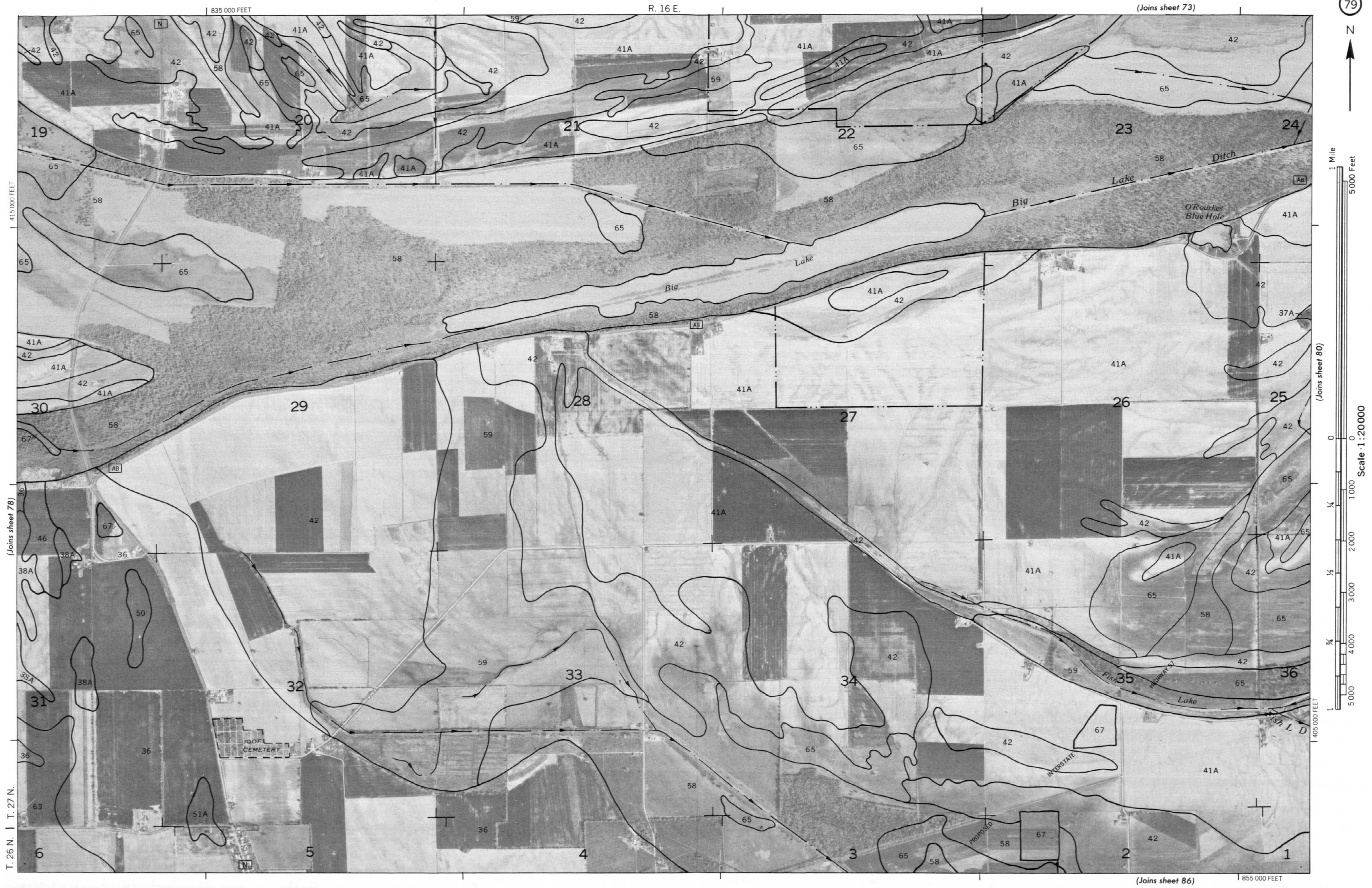
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 78


78
N
(Joins sheet 72)
(Joins sheet 77)
(Joins sheet 79)
(Joins sheet 85)
R. 15 E.
R. 16 E.
830 000 FEET
415 000 FEET
405 000 FEET
810 000 FEET
T. 27 N.
T. 26 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
SCOTT COUNTY
MISSISSIPPI COUNTY
Diehlstadt
RAILROAD
North Cut Ditch
Brushy Lake Ditch
Upper Big Lake Fishing Lake
77
NN
20
21
22
23
24
19
29
28
27
26
25
30
32
33
34
35
36
31
5
4
3
2
1
6
57B
61
59
58
40
54
38A
34
51A
42
65
43
41A
39
55
67
36
46
47
50
63

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 78

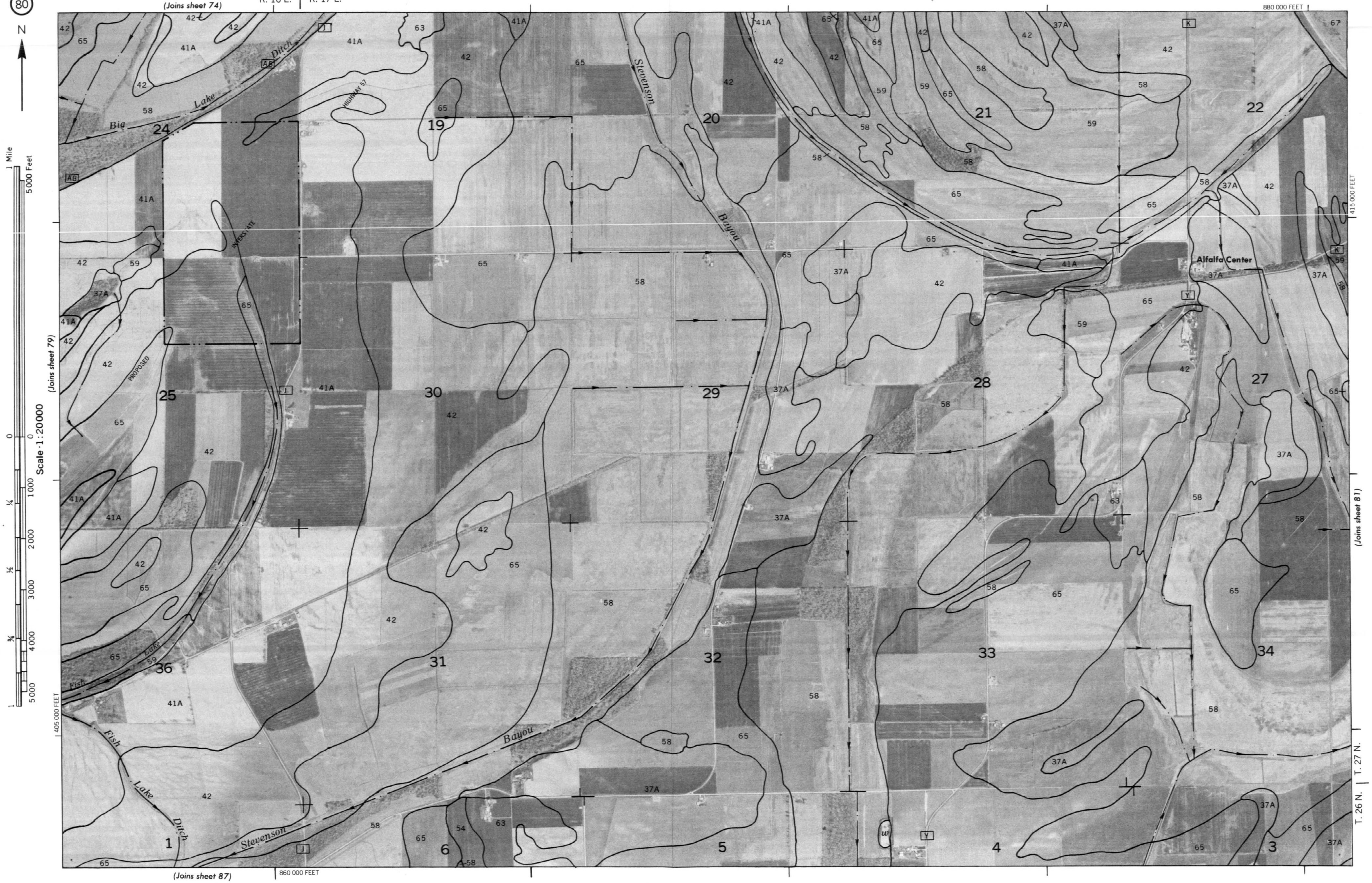
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 79



79
N
835 000 FEET
R. 16 E.
(Joins sheet 73)
415 000 FEET
(Joins sheet 78)
(Joins sheet 80)
(Joins sheet 86)
855 000 FEET
405 000 FEET
T. 27 N.
T. 26 N.
19
20
21
22
23
24
30
29
28
27
26
25
31
32
33
34
35
36
6
5
4
3
2
1
Big Lake Ditch
Big Lake
O'Rourkes Blue Hole
AB
Fish Lake
HIGHWAY 37
INTERSTATE
PROPOSED
IOOF CEMETERY
36
37A
38A
41A
42
46
50
51A
58
59
63
65
67
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 79

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

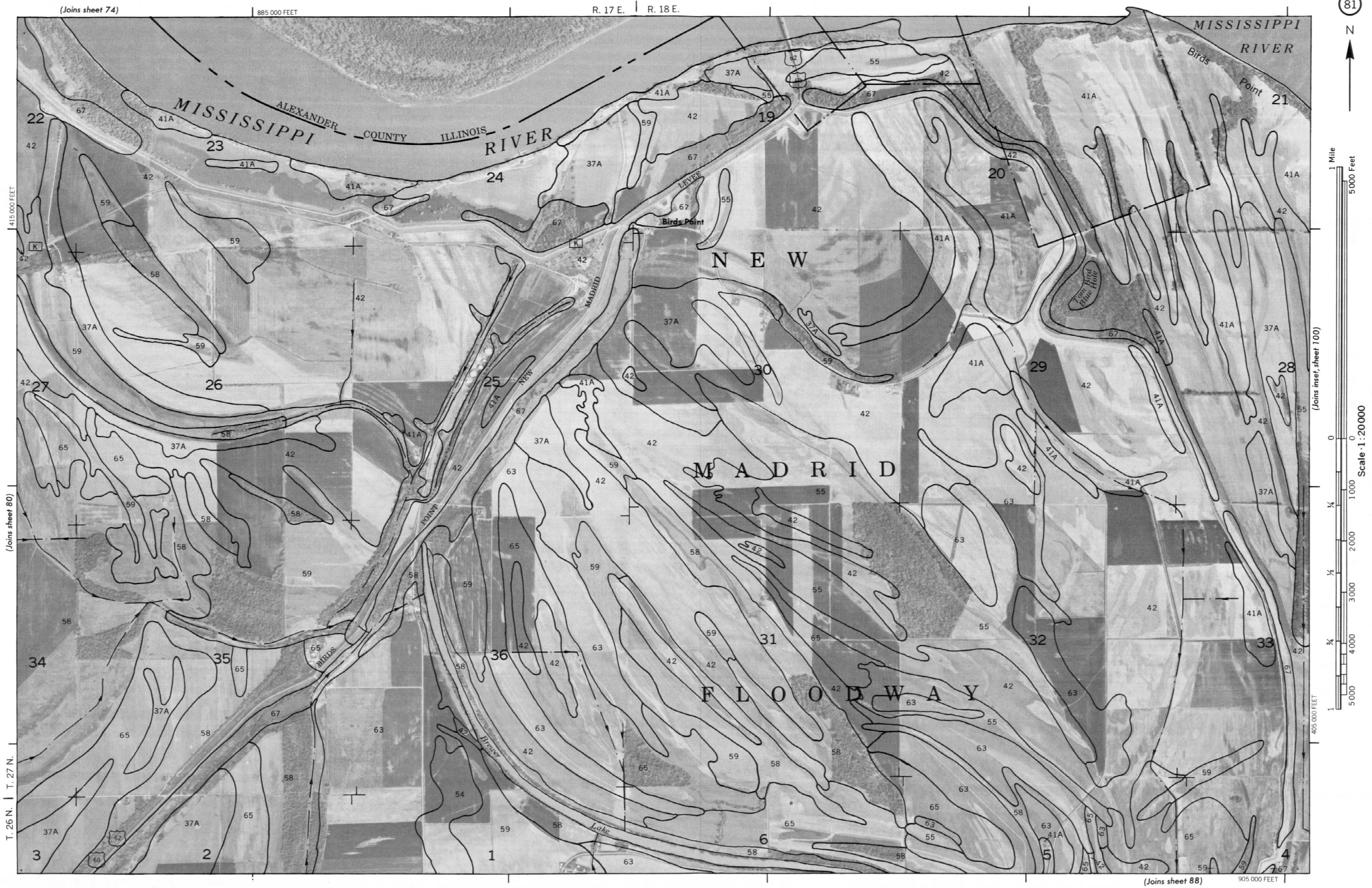

80
N
(Joins sheet 74)
R. 16 E.
R. 17 E.
880 000 FEET
415 000 FEET
405 000 FEET
860 000 FEET
(Joins sheet 79)
(Joins sheet 81)
(Joins sheet 87)
T. 27 N.
T. 26 N.
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
Big Lake Ditch
Fish Lake Ditch
Stevenson Bayou
HIGHWAY 57
INTERSTATE
PROPOSED
Alfalfa Center
J
AB
K
Y
1
3
4
5
6
19
20
21
22
24
25
27
28
29
30
31
32
33
34
36
37A
41A
42
54
58
59
63
65
67
w

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 81

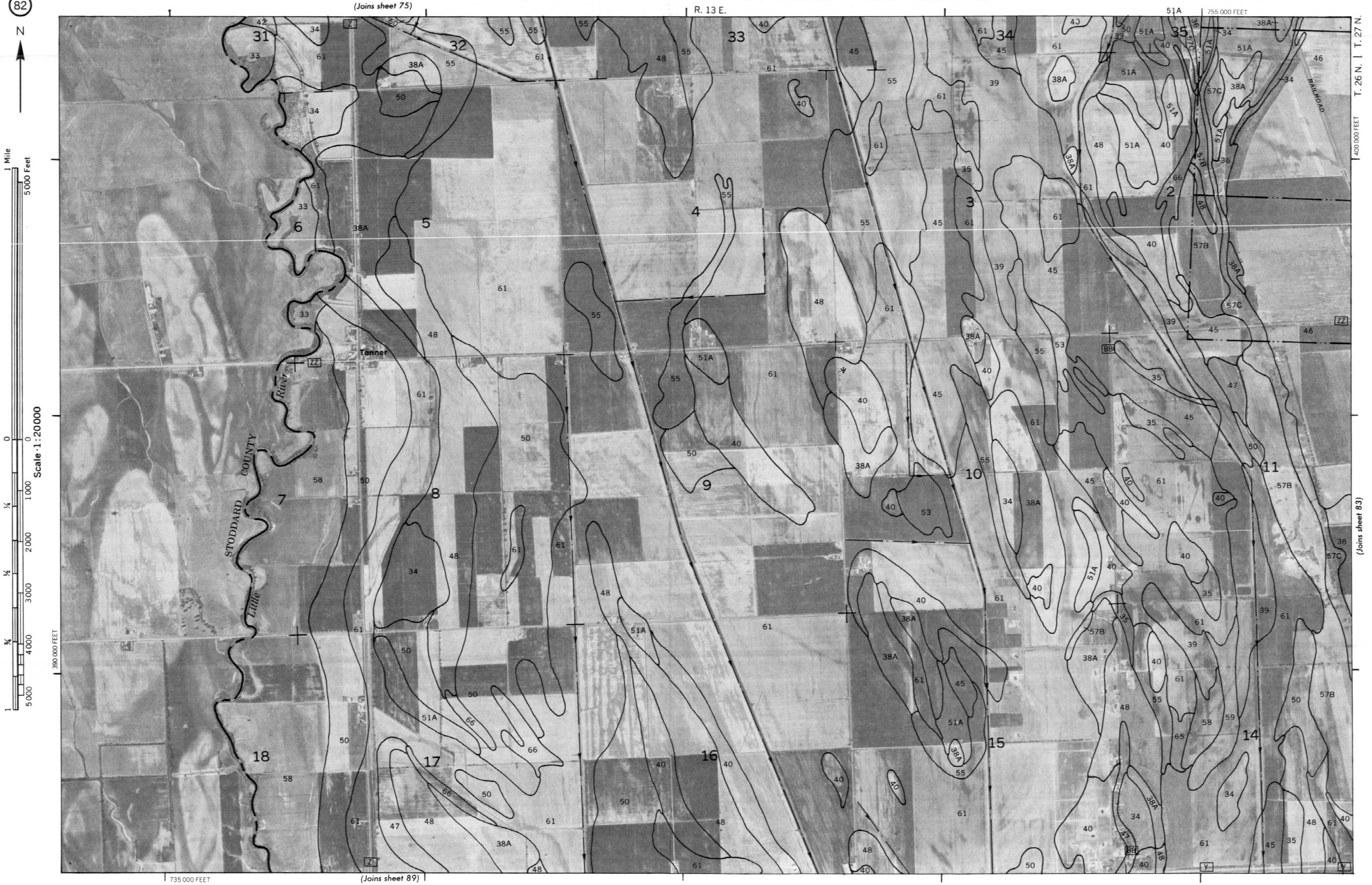
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 81

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.



81
N
(Joins sheet 74)
885 000 FEET
R. 17 E.
R. 18 E.
MISSISSIPPI RIVER
ALEXANDER COUNTY ILLINOIS
MISSISSIPPI RIVER
Birds Point
Birds Point
LEVEE
NEW MADRID FLOODWAY
NEW MADRID
BIRDS POINT
Tom Bird Blue Hole
Brewer Lake
415 000 FEET
405 000 FEET
905 000 FEET
(Joins sheet 80)
(Joins inset, sheet 100)
(Joins sheet 88)
T. 27 N.
T. 26 N.
K
62
60
1 Mile
5000 Feet
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
Scale 1:20000
22
23
24
19
20
21
25
26
27
28
29
30
31
32
33
34
35
36
1
2
3
4
5
6

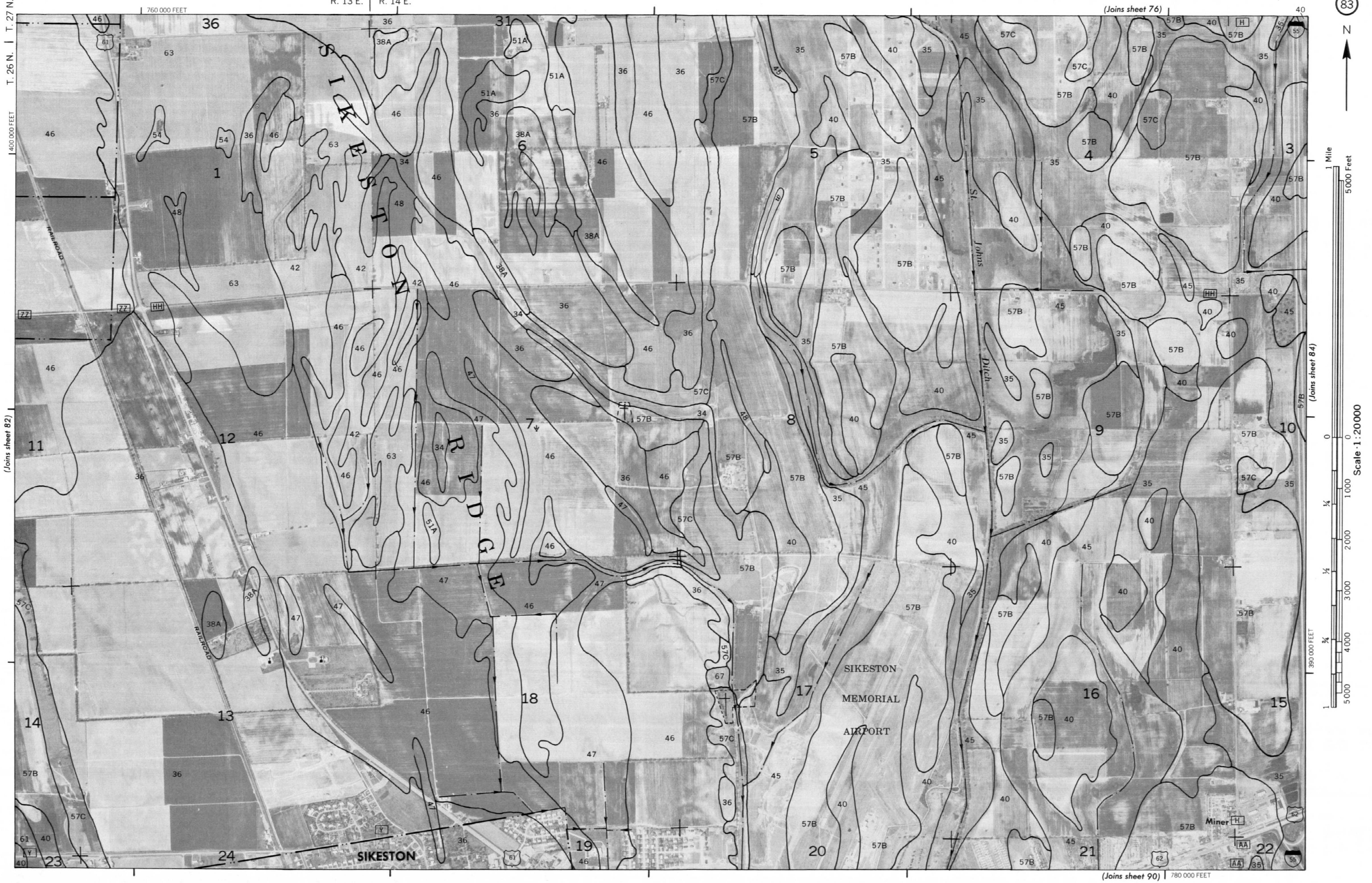
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 82


82
N
(Joins sheet 75)
R. 13 E.
755 000 FEET
T. 27 N.
T. 26 N.
400 000 FEET
RAILROAD
(Joins sheet 83)
(Joins sheet 89)
735 000 FEET
390 000 FEET
Tanner
Little River
STODDARD COUNTY
1 Mile
5000 Feet
Scale 1:20000
31
32
33
34
35
2
3
4
5
6
7
8
9
10
11
14
15
16
17
18

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

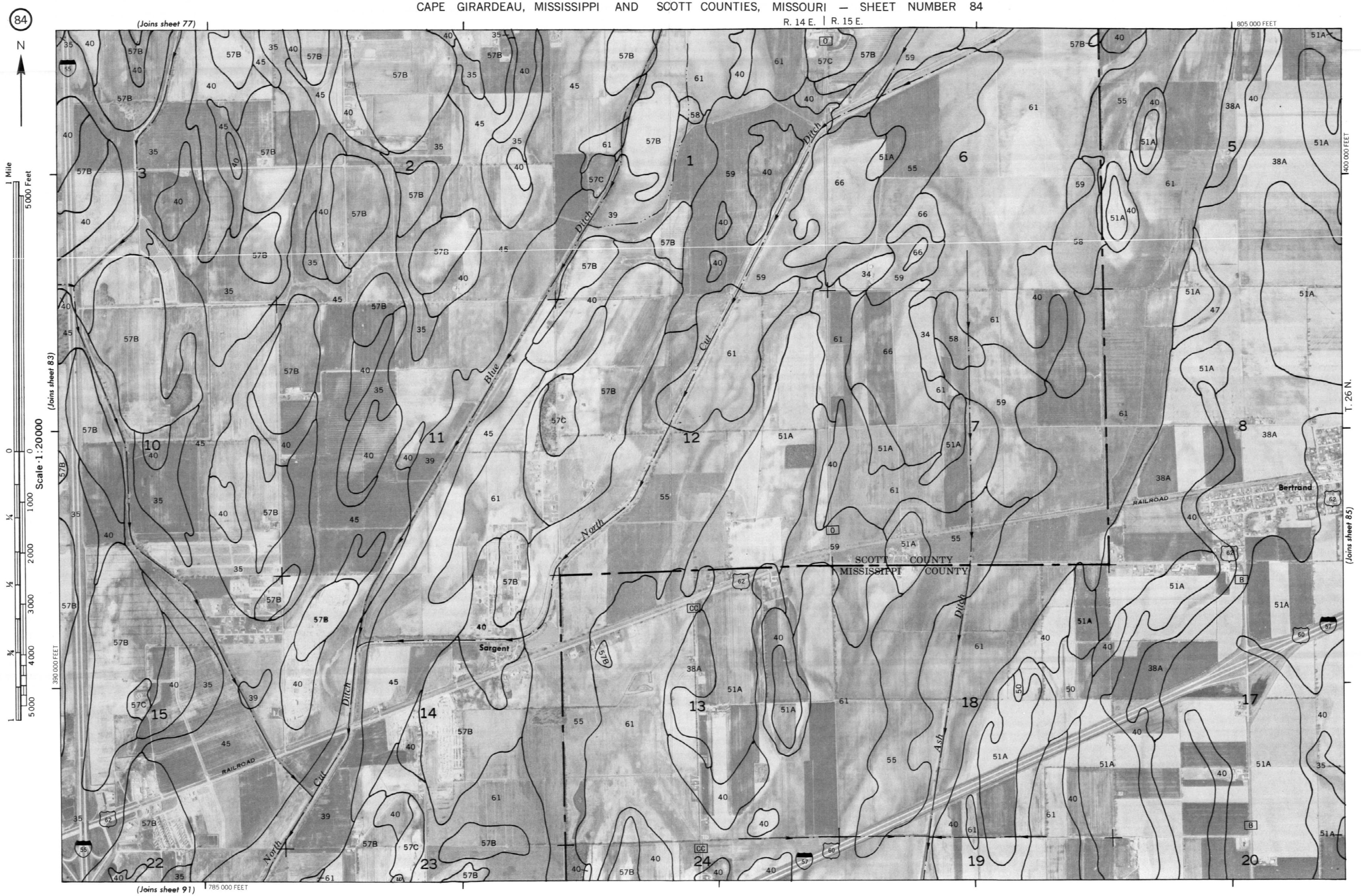
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 82

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 83


83
N
R. 13 E.
R. 14 E.
T. 27 N.
T. 26 N.
760 000 FEET
400 000 FEET
390 000 FEET
780 000 FEET
(Joins sheet 76)
(Joins sheet 84)
(Joins sheet 90)
(Joins sheet 82)
SIKESTON RIDGE
St. Johns Ditch
RAILROAD
SIKESTON MEMORIAL AIRPORT
SIKESTON
Miner
61
62
55
ZZ
HH
H
Y
AA
36
31
6
5
4
3
1
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
1 Mile
5000 Feet
Scale 1:20000
0
1/4
1/2
3/4
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 83

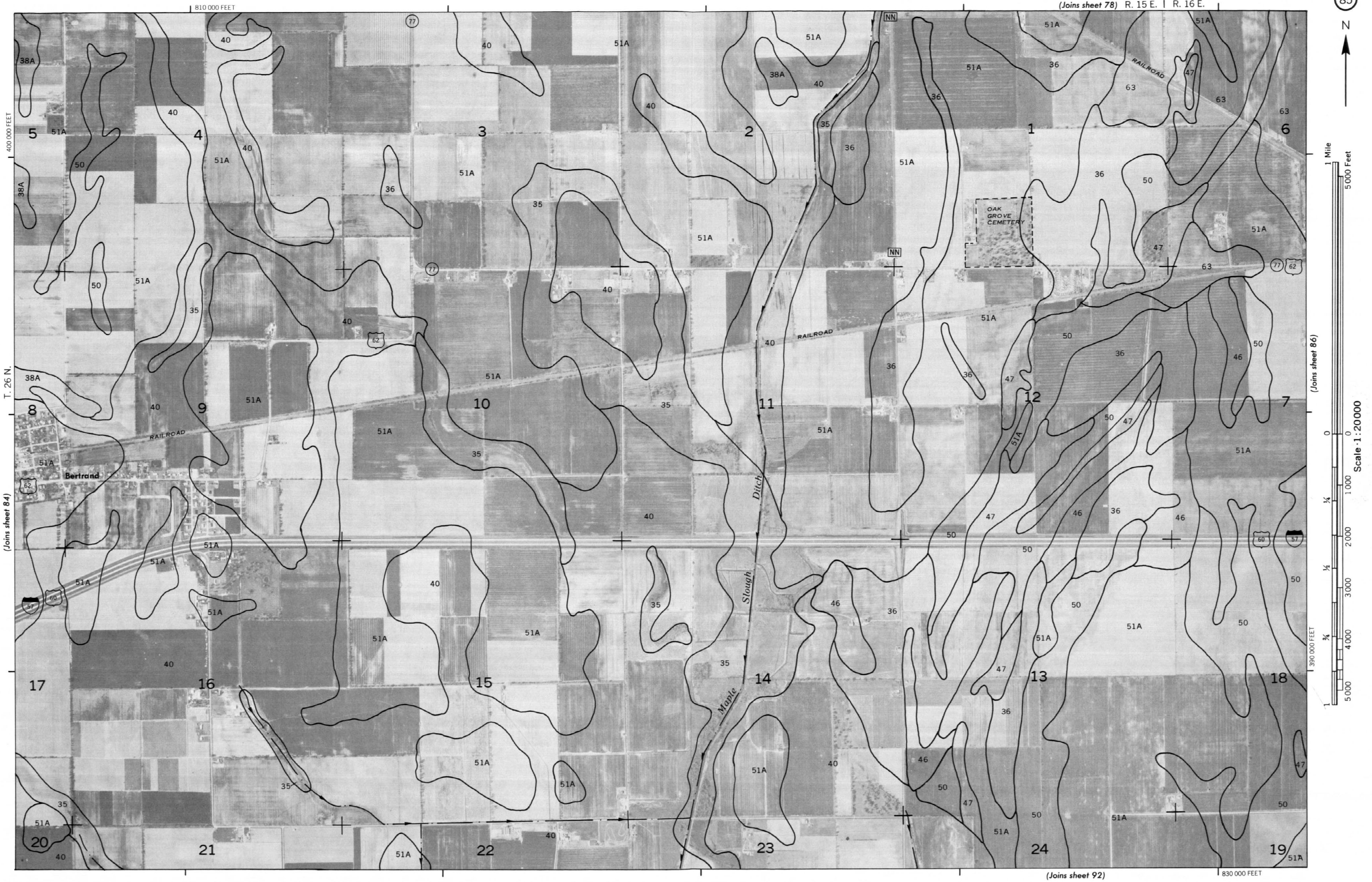
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.


84
N
(Joins sheet 77)
R. 14 E. | R. 15 E.
805 000 FEET
400 000 FEET
T. 26 N.
(Joins sheet 83)
(Joins sheet 85)
(Joins sheet 91)
785 000 FEET
390 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
Blue Ditch
North Cut Ditch
Ditch
Ash Ditch
RAILROAD
SCOTT COUNTY
MISSISSIPPI COUNTY
Bertrand
Sargent
55
57
60
62
O
CC
B
1
2
3
5
6
7
8
10
11
12
13
14
15
17
18
19
20
22
23
24

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 84

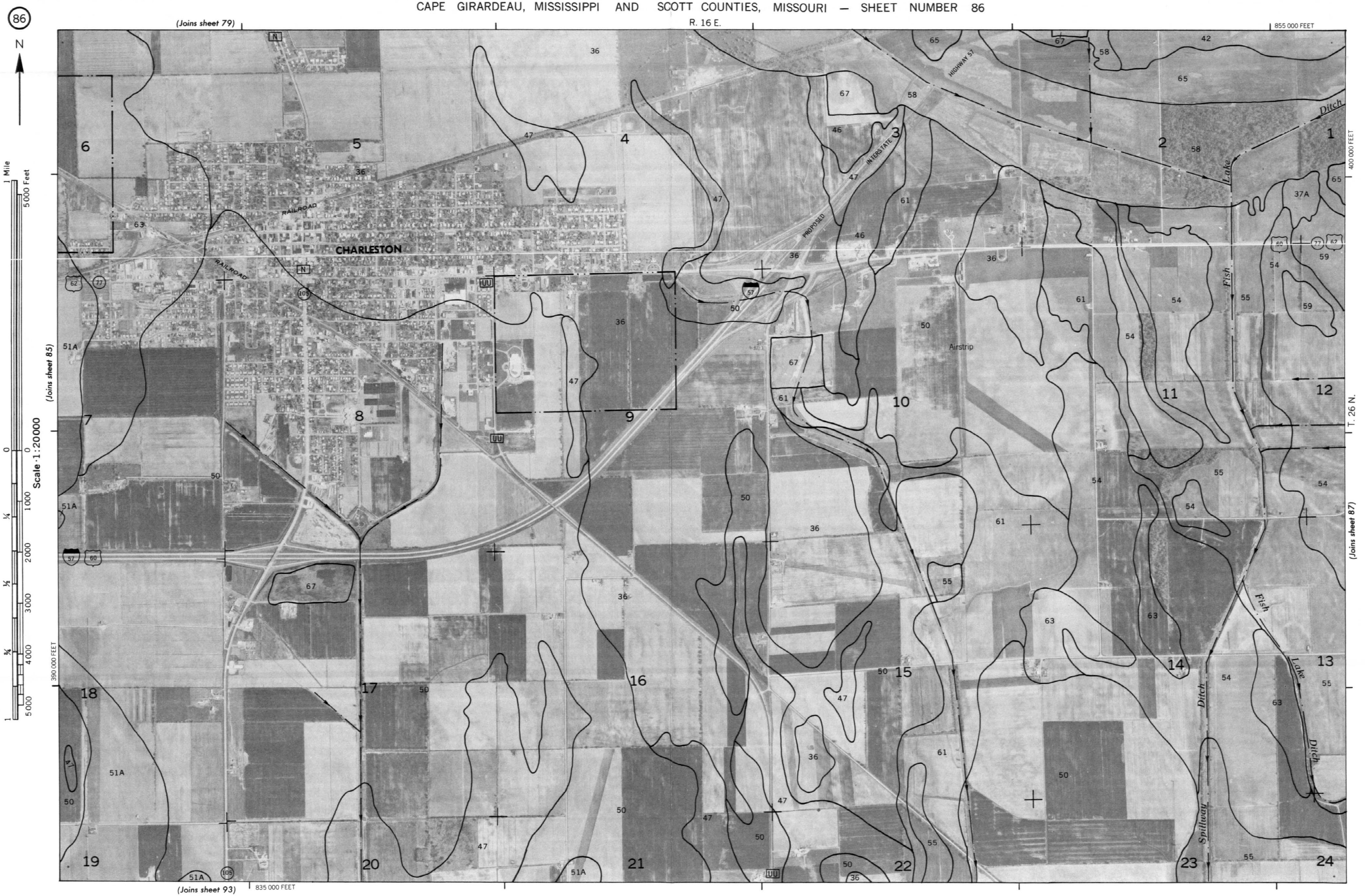
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 85


85
N
810 000 FEET
(Joins sheet 78)
R. 15 E.
R. 16 E.
400 000 FEET
390 000 FEET
830 000 FEET
T. 26 N.
(Joins sheet 84)
(Joins sheet 86)
(Joins sheet 92)
1 Mile
5 000 Feet
Scale 1:20000
0
1/4
1/2
3/4
1
0
1000
2000
3000
4000
5000
RAILROAD
RAILROAD
RAILROAD
OAK GROVE CEMETERY
Bertrand
Ditch
Slough
Maple
77
62
NN
60
57
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
35
36
38A
40
46
47
50
51A
63

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 85

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

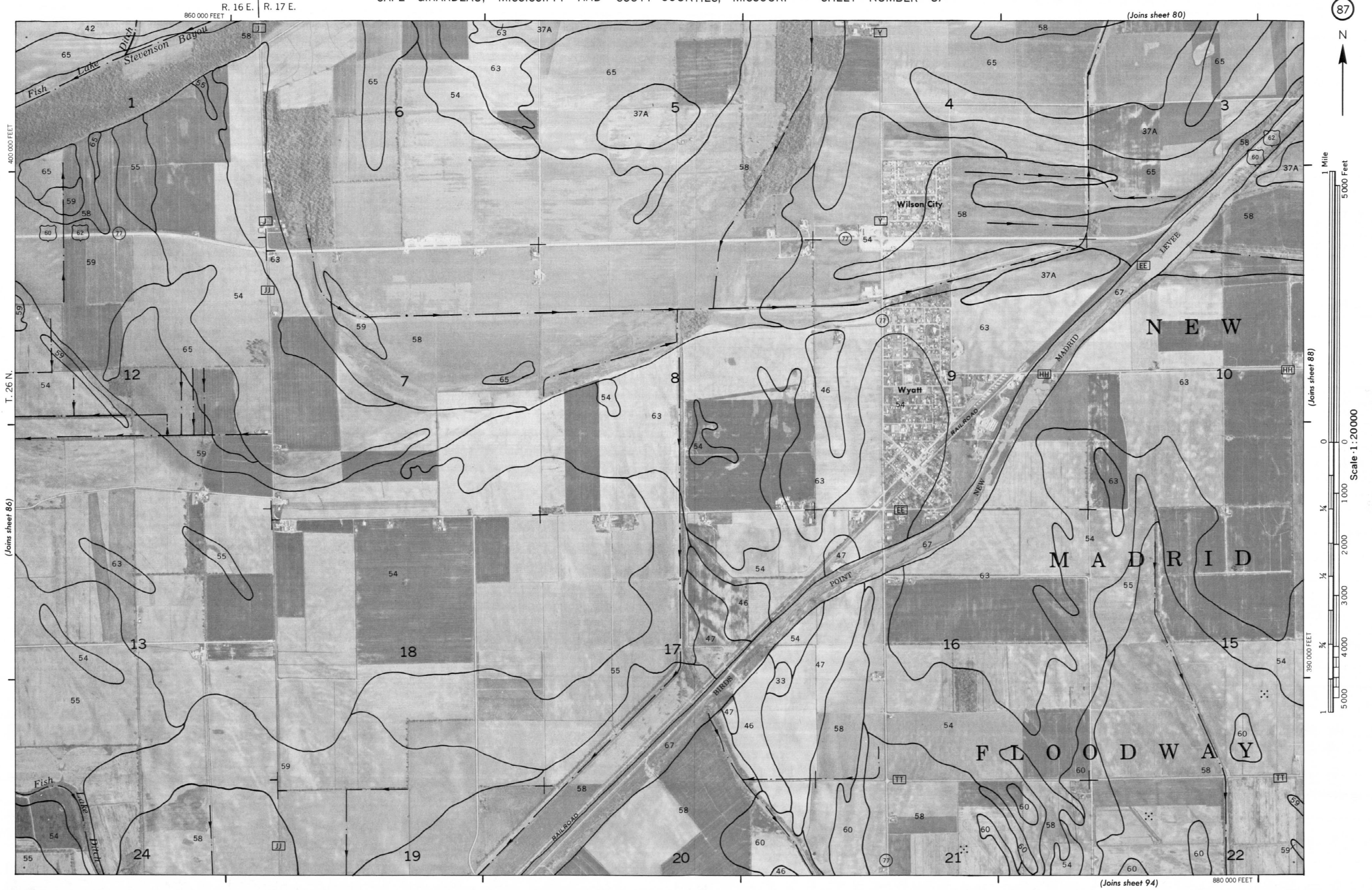
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 86


86
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
(Joins sheet 79)
R. 16 E.
855 000 FEET
400 000 FEET
(Joins sheet 85)
(Joins sheet 87)
(Joins sheet 93)
T. 26 N.
390 000 FEET
835 000 FEET
CHARLESTON
RAILROAD
HIGHWAY 57
PROPOSED
INTERSTATE
Airstrip
Ditch
Lake
Fish
Spillway
62
77
60
57
105
N
UU
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
36
37A
42
46
47
50
51A
54
55
58
59
61
63
65
67

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 86

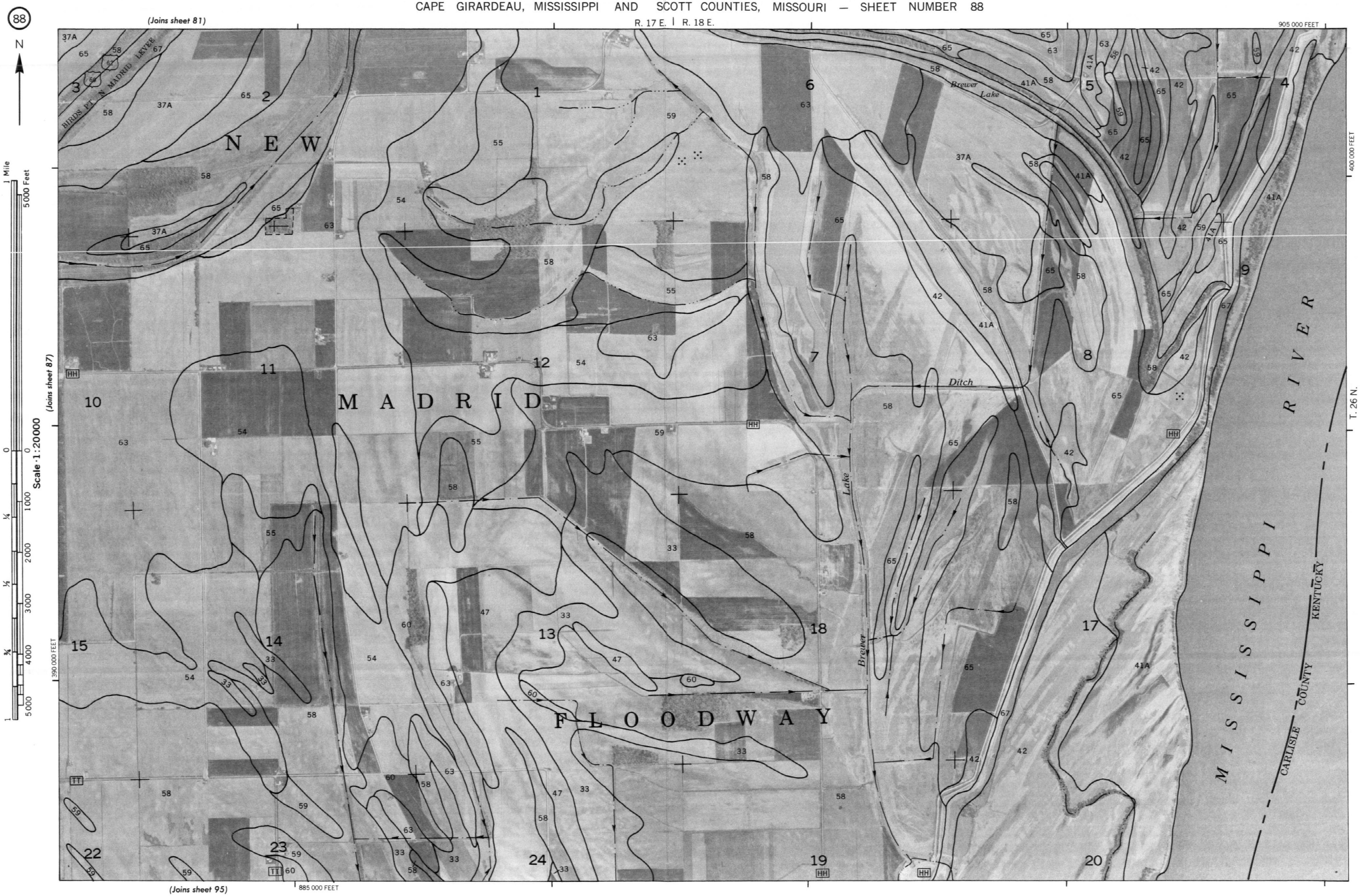
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 87


87
N
R. 16 E.
R. 17 E.
860 000 FEET
(Joins sheet 80)
400 000 FEET
T. 26 N.
(Joins sheet 86)
(Joins sheet 88)
(Joins sheet 94)
390 000 FEET
880 000 FEET
1 Mile
5 000 Feet
0
1/4
1/2
3/4
1
0
1000
2000
3000
4000
5000
Scale 1:20000
Fish Lake Ditch
Stevenson Bayou
Wilson City
Wyatt
NEW MADRID FLOODWAY
LEVEE
NEW MADRID
RAILROAD
BIRDS POINT
60
62
77
J
JJ
Y
EE
HH
TT
1
3
4
5
6
7
8
9
10
12
13
15
16
17
18
19
20
21
22
24
33
37A
42
46
47
54
55
58
59
60
63
65
67

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 87

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

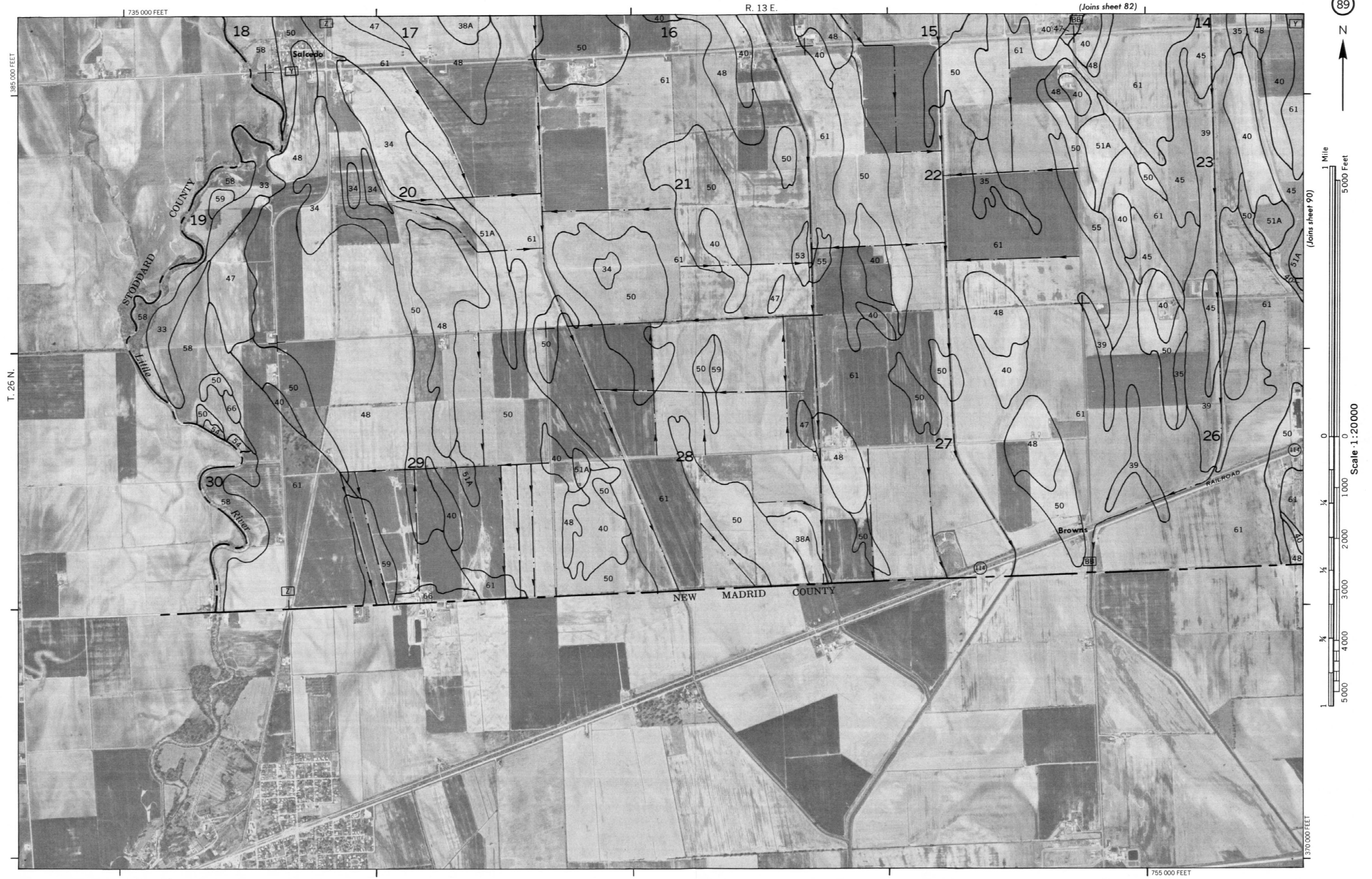
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 88


88
N
(Joins sheet 81)
R. 17 E. | R. 18 E.
905 000 FEET
400 000 FEET
(Joins sheet 87)
(Joins sheet 95)
885 000 FEET
390 000 FEET
T. 26 N.
1 Mile
5 000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
BIRDS PT.-N. MADRID LEVEE
N E W
M A D R I D
F L O O D W A Y
Brewer Lake
Ditch
Lake
Brewer
M I S S I S S I P P I
R I V E R
CARLISLE COUNTY
KENTUCKY
HH
TT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
17
18
19
20
22
23
24
33
37A
41A
42
47
54
55
58
59
60
62
63
65
66
67

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 88

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 89



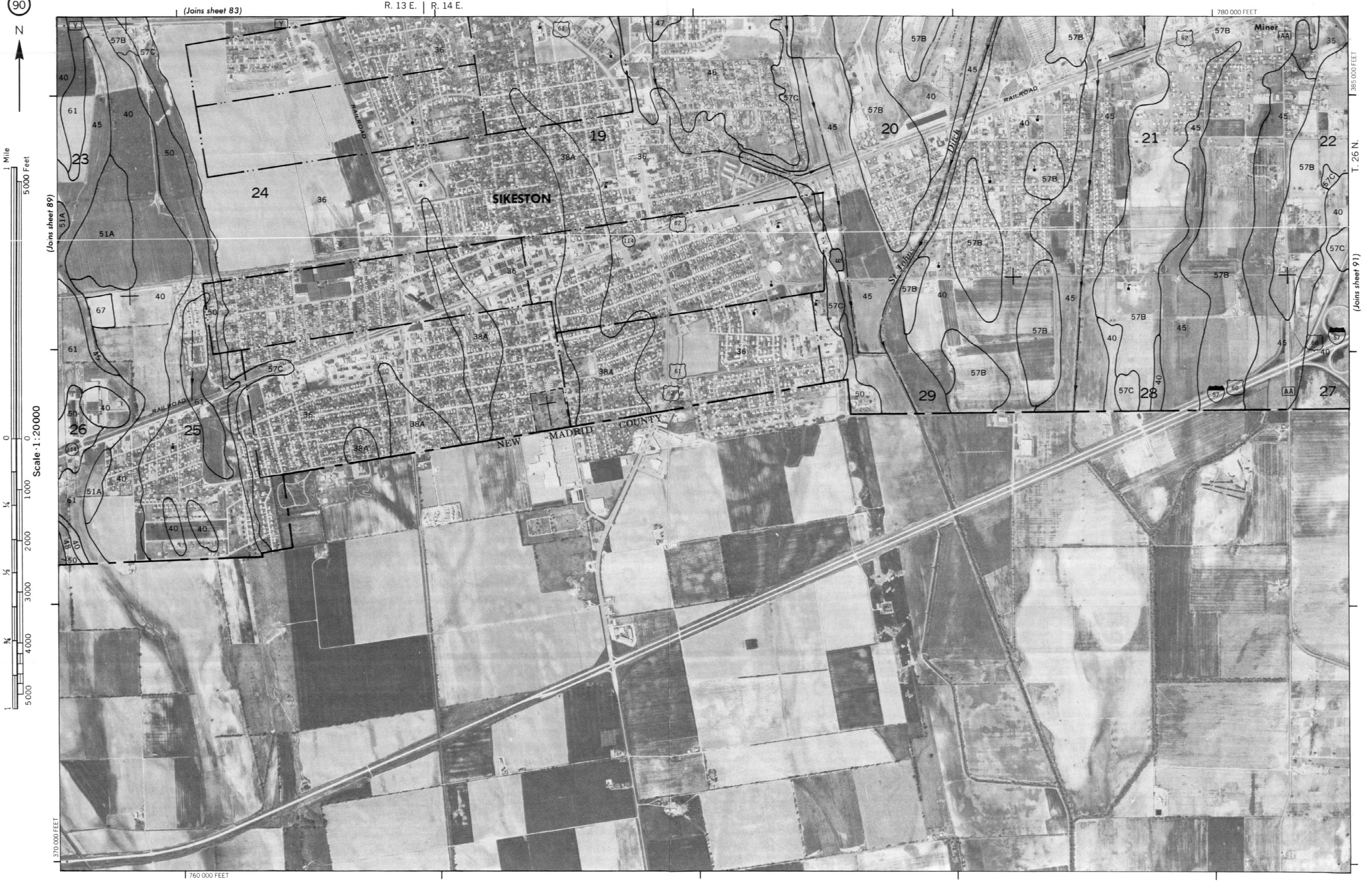
89
N
735 000 FEET
385 000 FEET
R. 13 E.
(Joins sheet 82)
(Joins sheet 90)
T. 26 N.
755 000 FEET
370 000 FEET
Salcedo
Browns
STODDARD COUNTY
NEW MADRID COUNTY
Little River
RAILROAD
Y
Z
BB
114
14
15
16
17
18
19
20
21
22
23
26
27
28
29
30
33
34
35
38A
39
40
45
47
48
50
51A
53
54
55
58
59
61
66
1 Mile
5000 Feet
0
¼
½
¾
1
1000
2000
3000
4000
5000
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 89

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

⑨⓪

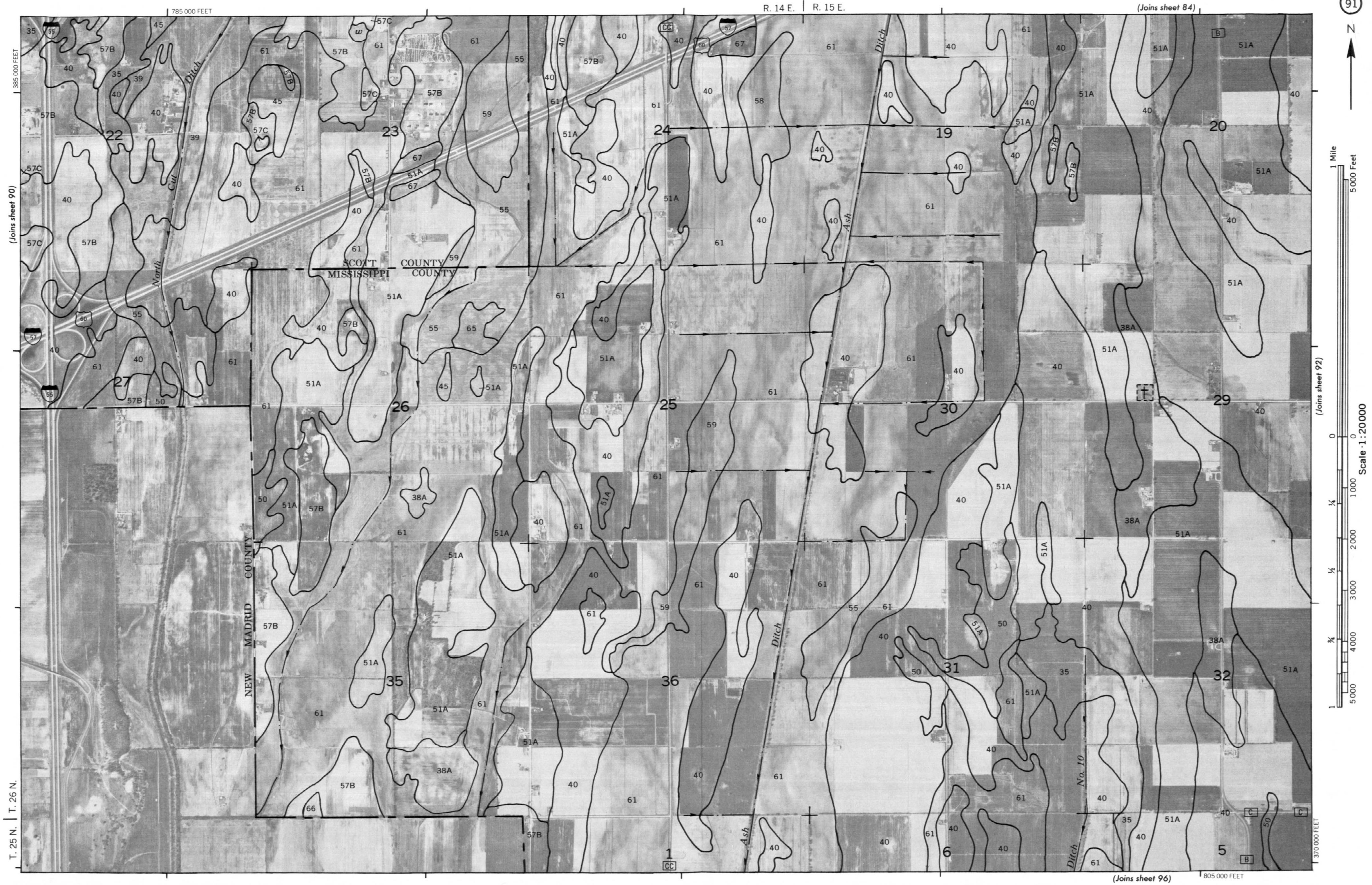
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 90


(Joins sheet 83)
R. 13 E.
R. 14 E.
780 000 FEET
385 000 FEET
T. 26 N.
(Joins sheet 89)
(Joins sheet 91)
760 000 FEET
370 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
SIKESTON
Miner
RAILROAD
NEW MADRID COUNTY
St. Johns Ditch
19
20
21
22
23
24
25
26
27
28
29
35
36
38A
40
45
46
47
48
50
51A
57B
57C
61
67
w
Y
AA
61
62
114
57
60

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 90

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 91

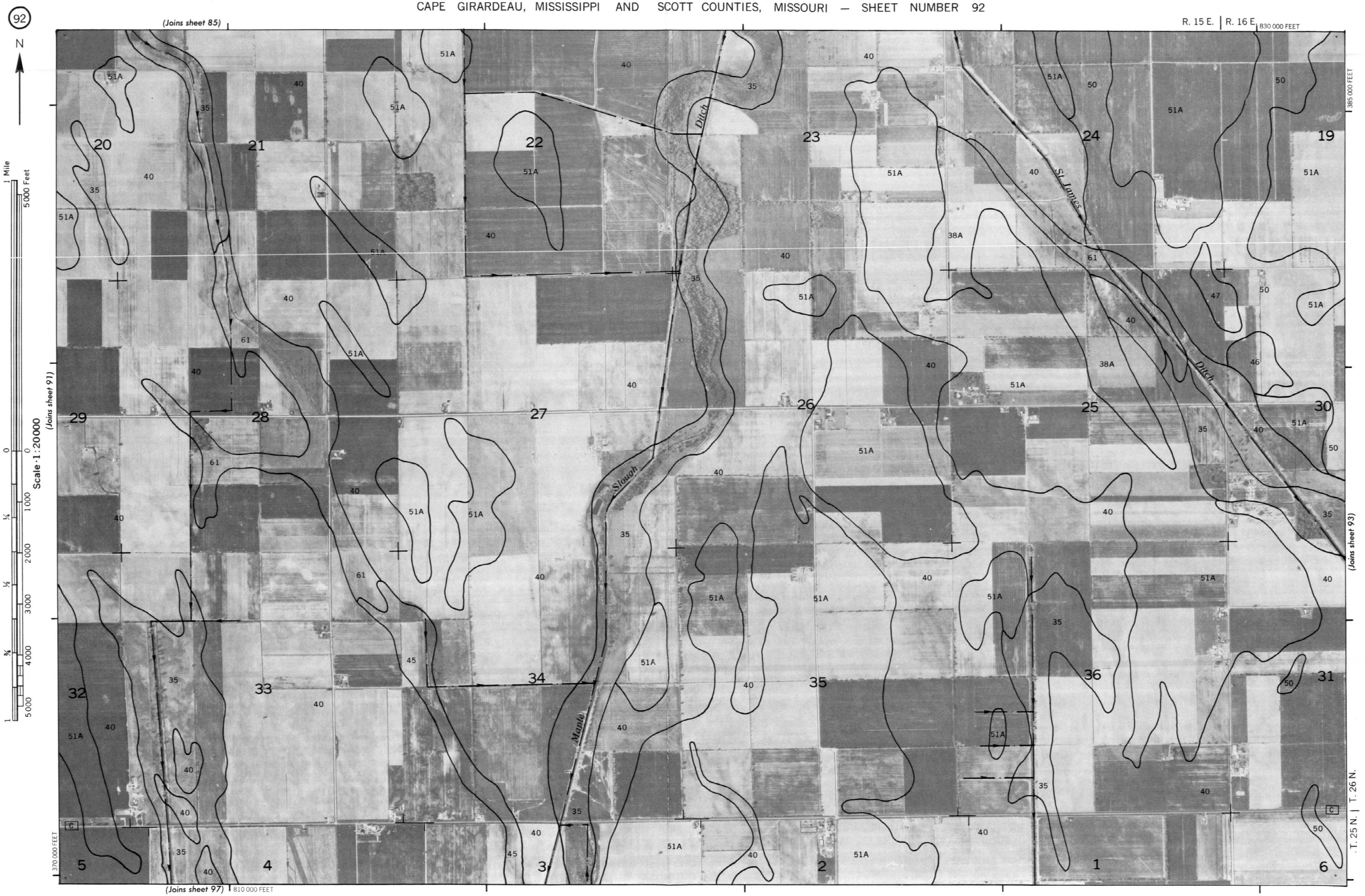


91
N
785 000 FEET
R. 14 E. | R. 15 E.
(Joins sheet 84)
(Joins sheet 90)
(Joins sheet 92)
(Joins sheet 96)
385 000 FEET
370 000 FEET
805 000 FEET
T. 26 N.
T. 25 N.
North Cut Ditch
Ash Ditch
Ditch No. 10
SCOTT COUNTY
MISSISSIPPI COUNTY
NEW MADRID COUNTY
55
57
60
CC
B
C
22
23
24
19
20
27
26
25
30
29
35
36
31
32
1
6
5
35
39
40
45
50
51A
55
57B
57C
58
59
61
65
66
67
38A
w
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 91

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

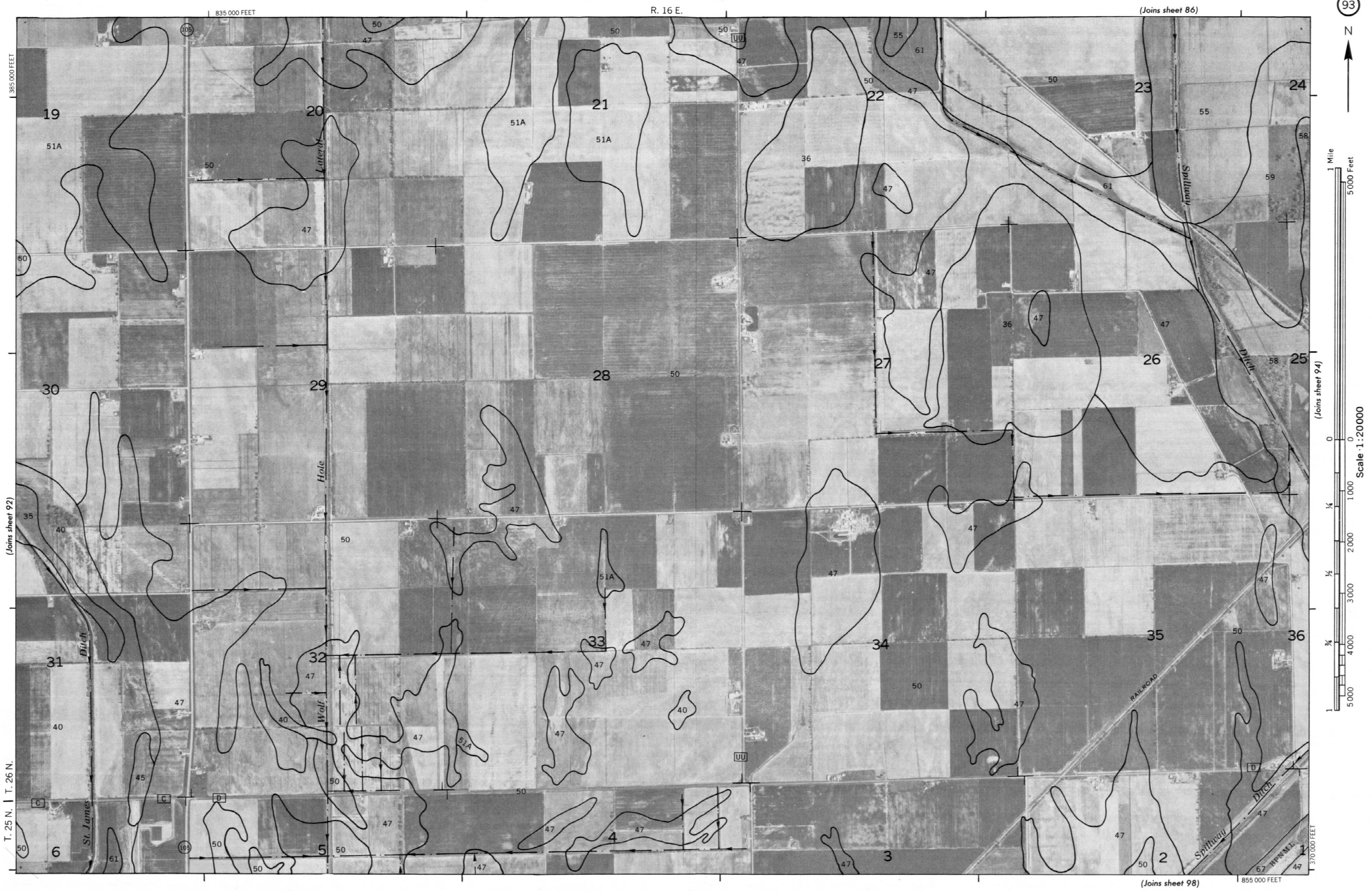
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 92



92
N
(Joins sheet 85)
R. 15 E.
R. 16 E.
830 000 FEET
385 000 FEET
(Joins sheet 91)
(Joins sheet 93)
(Joins sheet 97)
810 000 FEET
370 000 FEET
T. 26 N.
T. 25 N.
1 Mile
5000 Feet
Scale 1:20000
0
1/4
1/2
3/4
1
1000
2000
3000
4000
5000
20
21
22
23
24
19
29
28
27
26
25
30
32
33
34
35
36
31
5
4
3
2
1
6
Ditch
St. James
Ditch
Slough
Maple
C
51A
35
40
38A
50
61
47
46
45

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 92

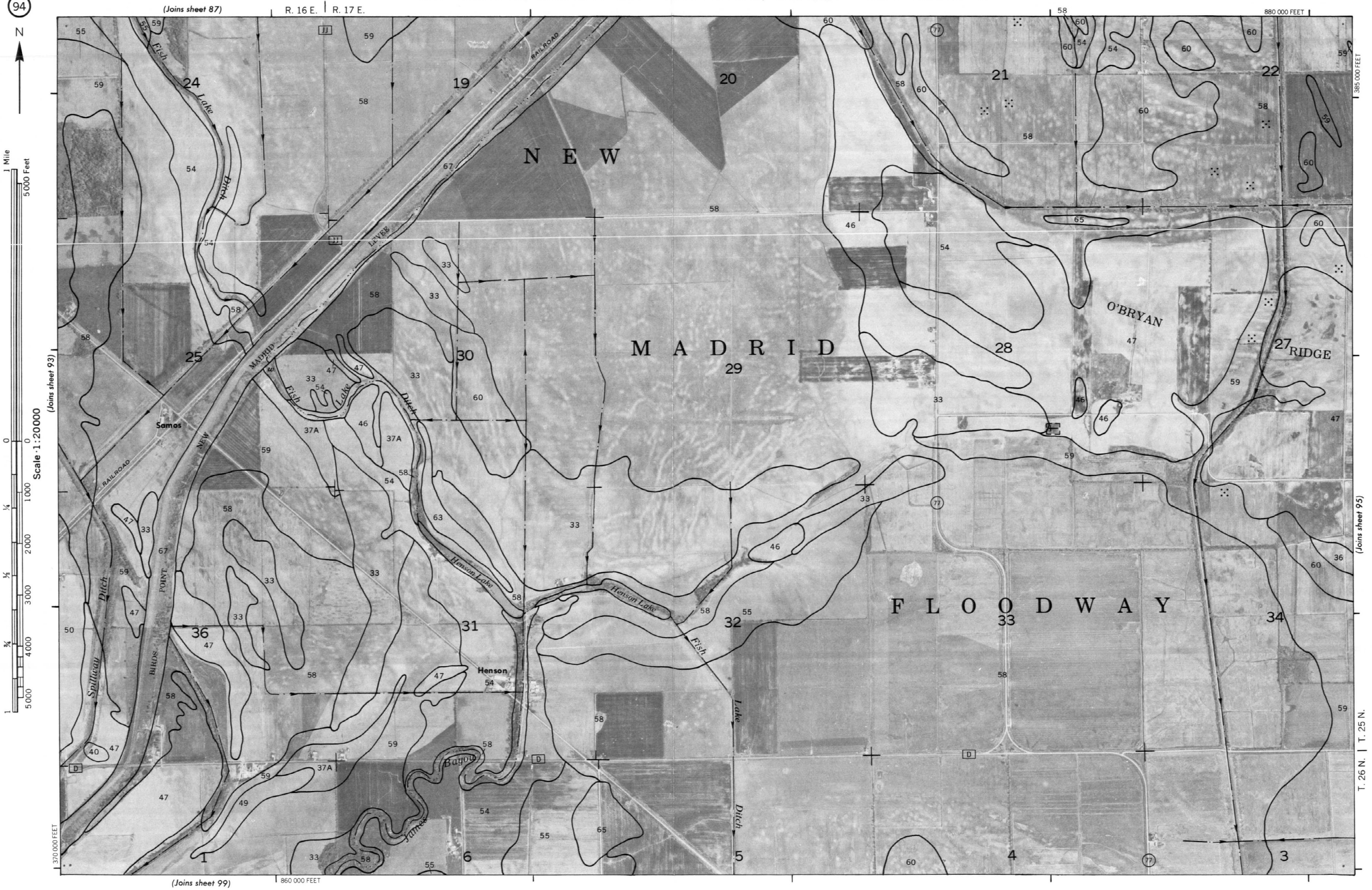


835 000 FEET
R. 16 E.
(Joins sheet 86)
93
N
385 000 FEET
(Joins sheet 92)
(Joins sheet 94)
(Joins sheet 98)
T. 26 N.
T. 25 N.
370 000 FEET
855 000 FEET
19
20
21
22
23
24
30
29
28
27
26
25
31
32
33
34
35
36
6
5
4
3
2
1
51A
50
47
36
55
61
58
59
35
40
45
UU
105
C
D
Lateral
Hole
Wolf
Ditch
St. James
Spillway
RAILROAD
1 Mile
5000 Feet
Scale 1:20000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 93

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 94


94
N
(Joins sheet 87)
R. 16 E.
R. 17 E.
880 000 FEET
385 000 FEET
(Joins sheet 93)
(Joins sheet 95)
(Joins sheet 99)
860 000 FEET
370 000 FEET
T. 26 N.
T. 25 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
NEW MADRID FLOODWAY
O'BRYAN RIDGE
Samos
Henson
Fish Lake Ditch
Henson Lake
Birds Point New Madrid
Spillway Ditch
James Bayou
RAILROAD
LEVEE
JJ
D
77
19
20
21
22
24
25
27
28
29
30
31
32
33
34
36
1
3
4
5
6

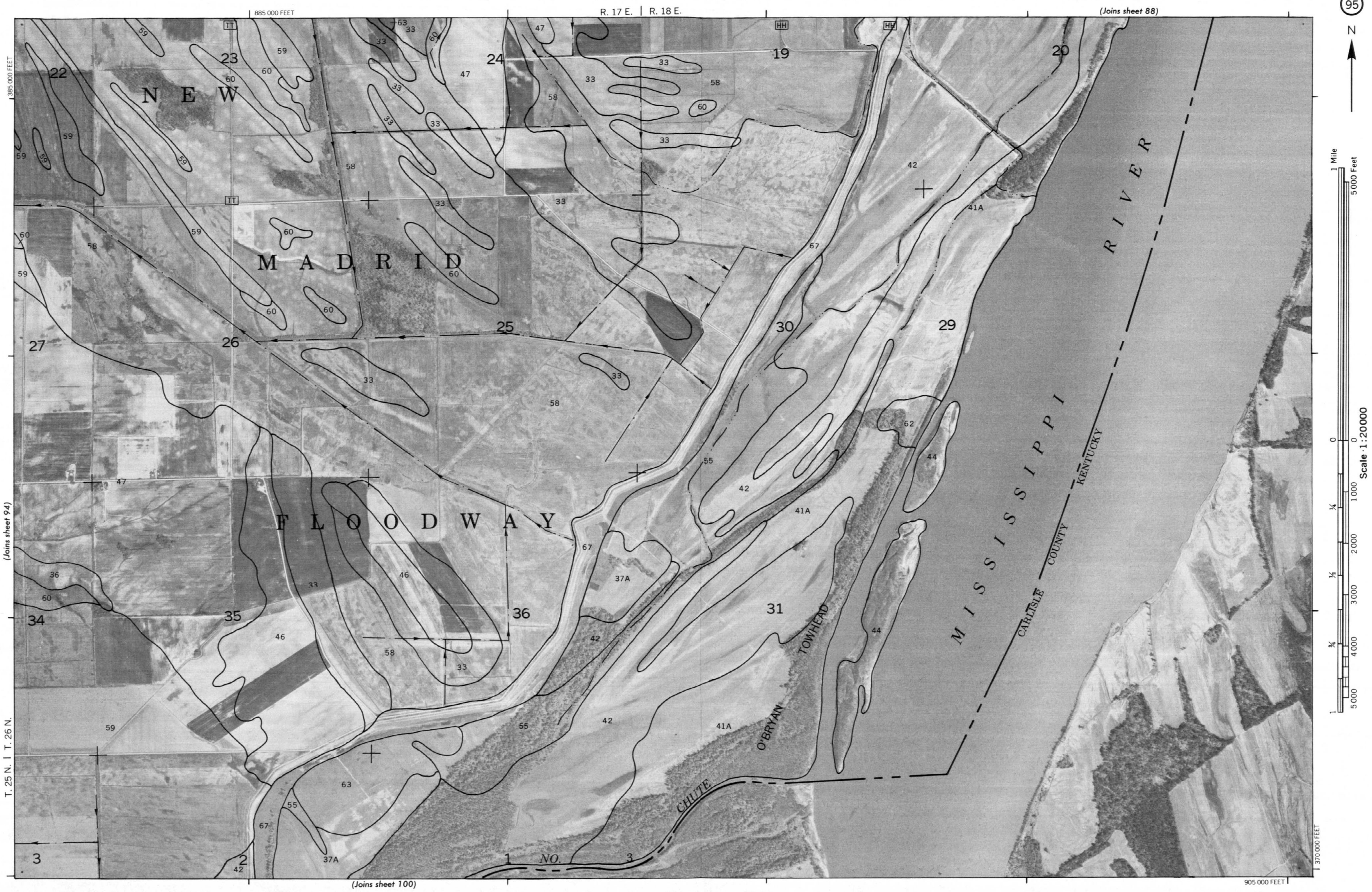
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 94

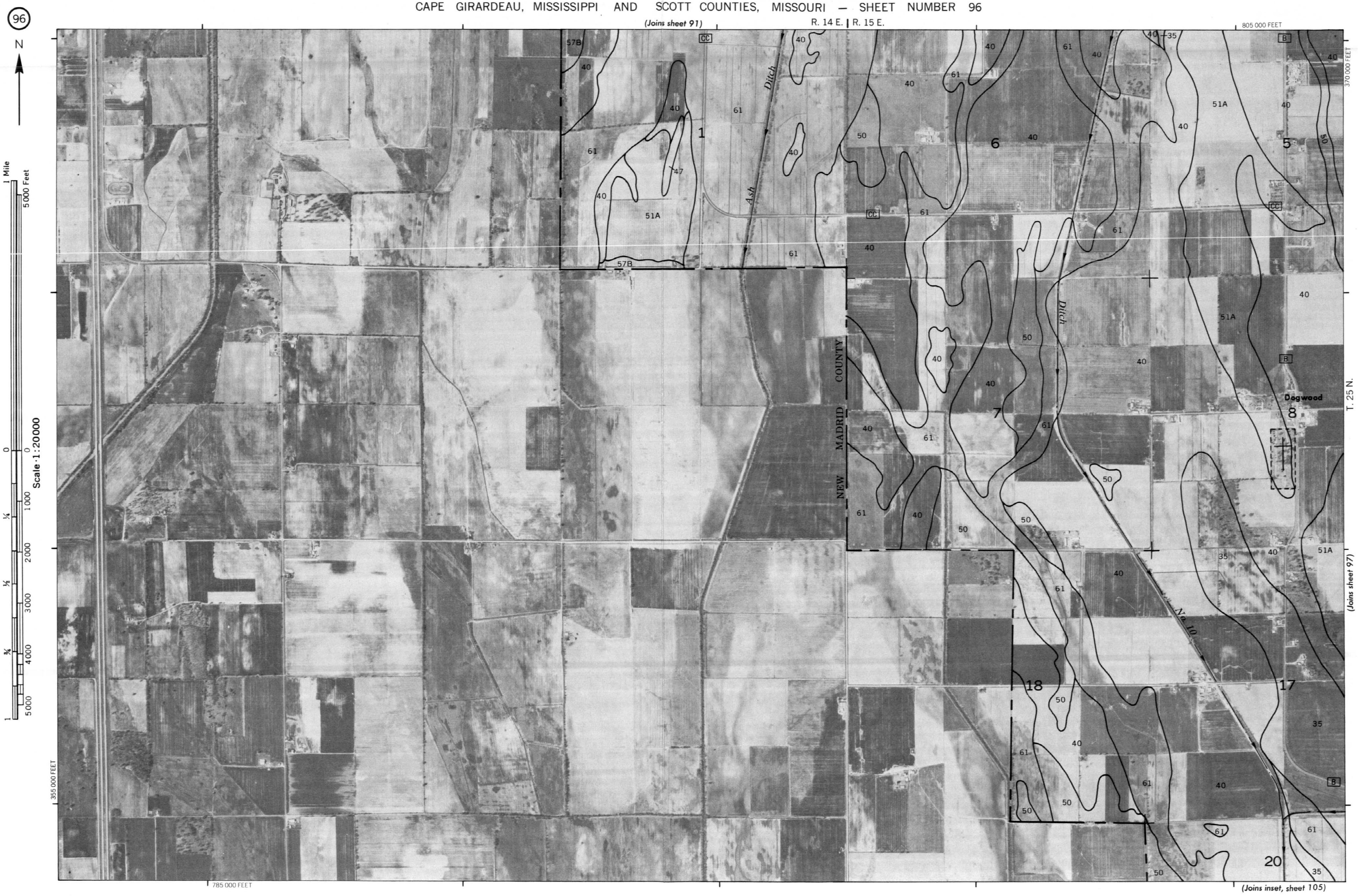
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 95

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 95

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.


95
N
885 000 FEET
R. 17 E. | R. 18 E.
(Joins sheet 88)
385 000 FEET
(Joins sheet 94)
(Joins sheet 100)
905 000 FEET
370 000 FEET
T. 25 N. | T. 26 N.
TT
HH
NEW MADRID FLOODWAY
MISSISSIPPI RIVER
CARLISLE COUNTY KENTUCKY
O'BRYAN TOWHEAD
CHUTE NO. 1
3
22
23
24
19
20
27
26
25
30
29
34
35
36
31
3
2
1
59
60
33
47
58
63
42
41A
67
62
44
55
37A
36
46
Scale 1:20000
1 Mile
5000 Feet
0
¼
½
¾
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 96


96
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
(Joins sheet 91)
R. 14 E. | R. 15 E.
805 000 FEET
370 000 FEET
355 000 FEET
785 000 FEET
T. 25 N.
(Joins sheet 97)
(Joins inset, sheet 105)
CC
CC
CC
B
B
B
Ash Ditch
Ditch
No. 10
NEW MADRID COUNTY
Dogwood
1
5
6
7
8
17
18
20
57B
40
40
61
47
40
51A
57B
61
40
40
50
40
61
40
61
40
40
61
40
61
40
61
40
40
51A
40
40
50
40
35
40
40
51A
40
40
40
40
50
40
61
40
61
40
50
61
40
50
50
50
35
40
51A
40
61
50
40
61
50
50
61
40
35
61
61
50
35

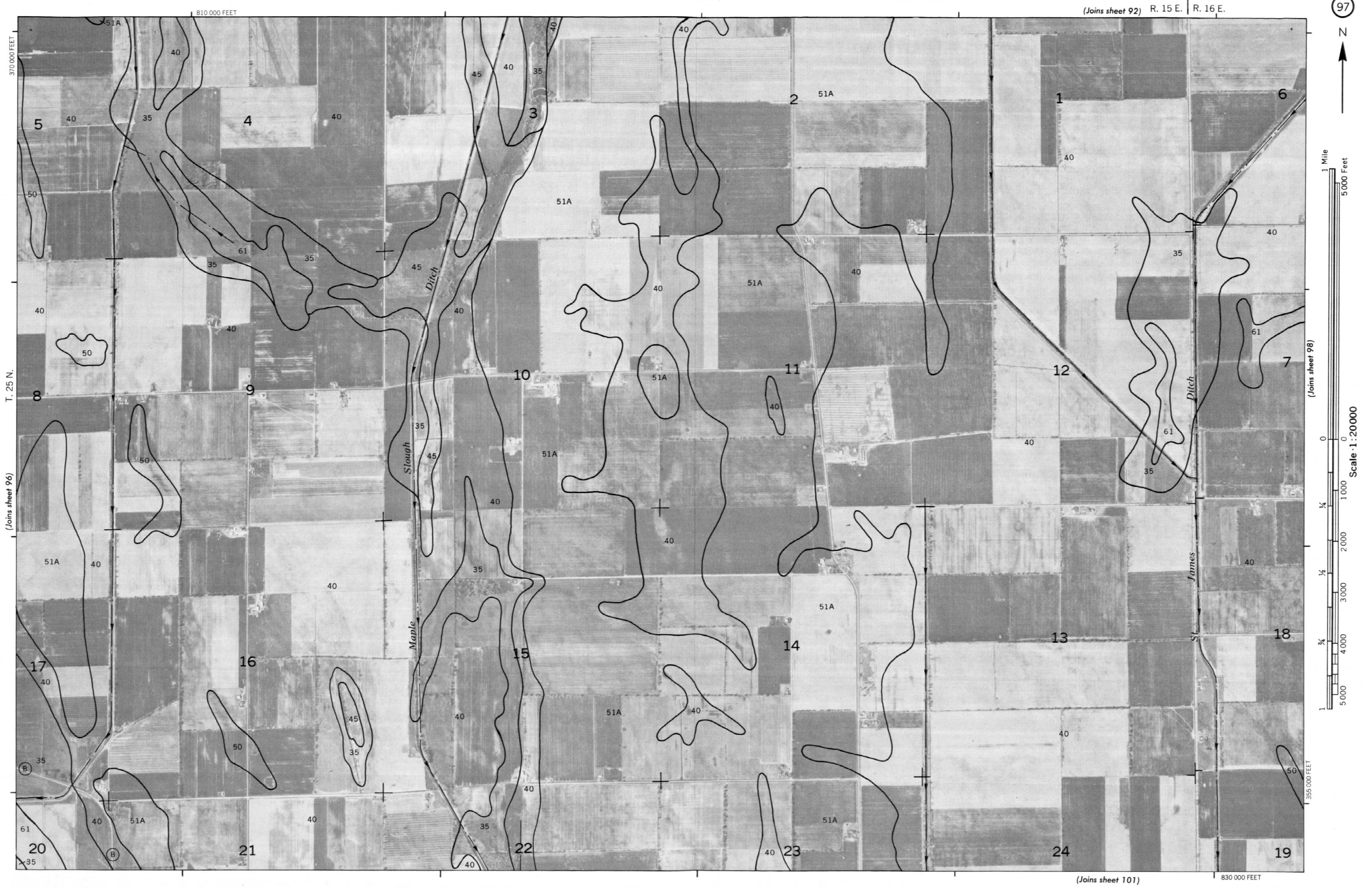
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 96

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 97

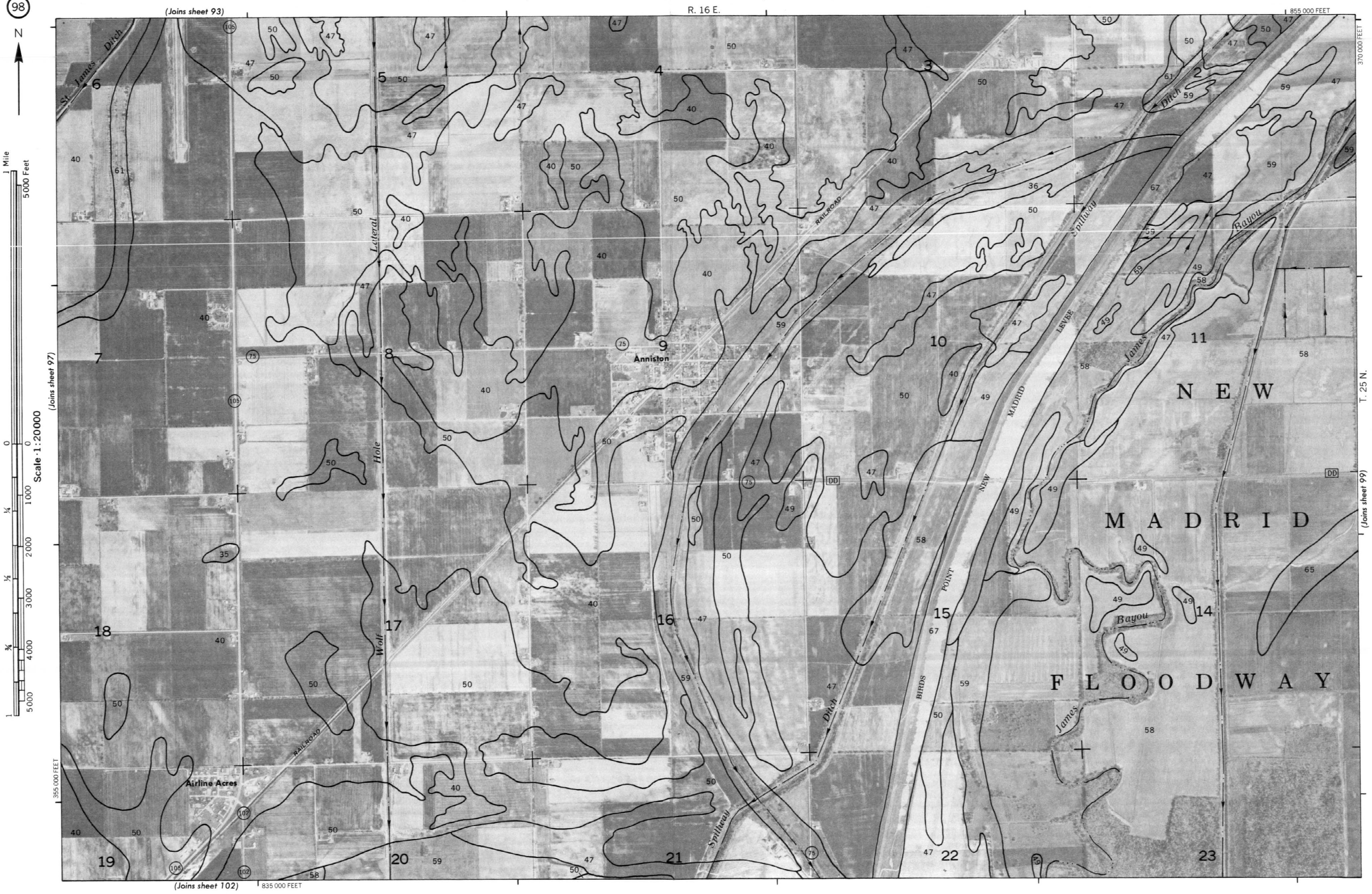
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 97

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.



810 000 FEET
(Joins sheet 92)
R. 15 E.
R. 16 E.
97
N
370 000 FEET
T. 25 N.
(Joins sheet 96)
(Joins sheet 98)
(Joins sheet 101)
830 000 FEET
355 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
Ditch
Slough
Maple
James
St.
Ditch
B
35
40
45
50
51A
61

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 98

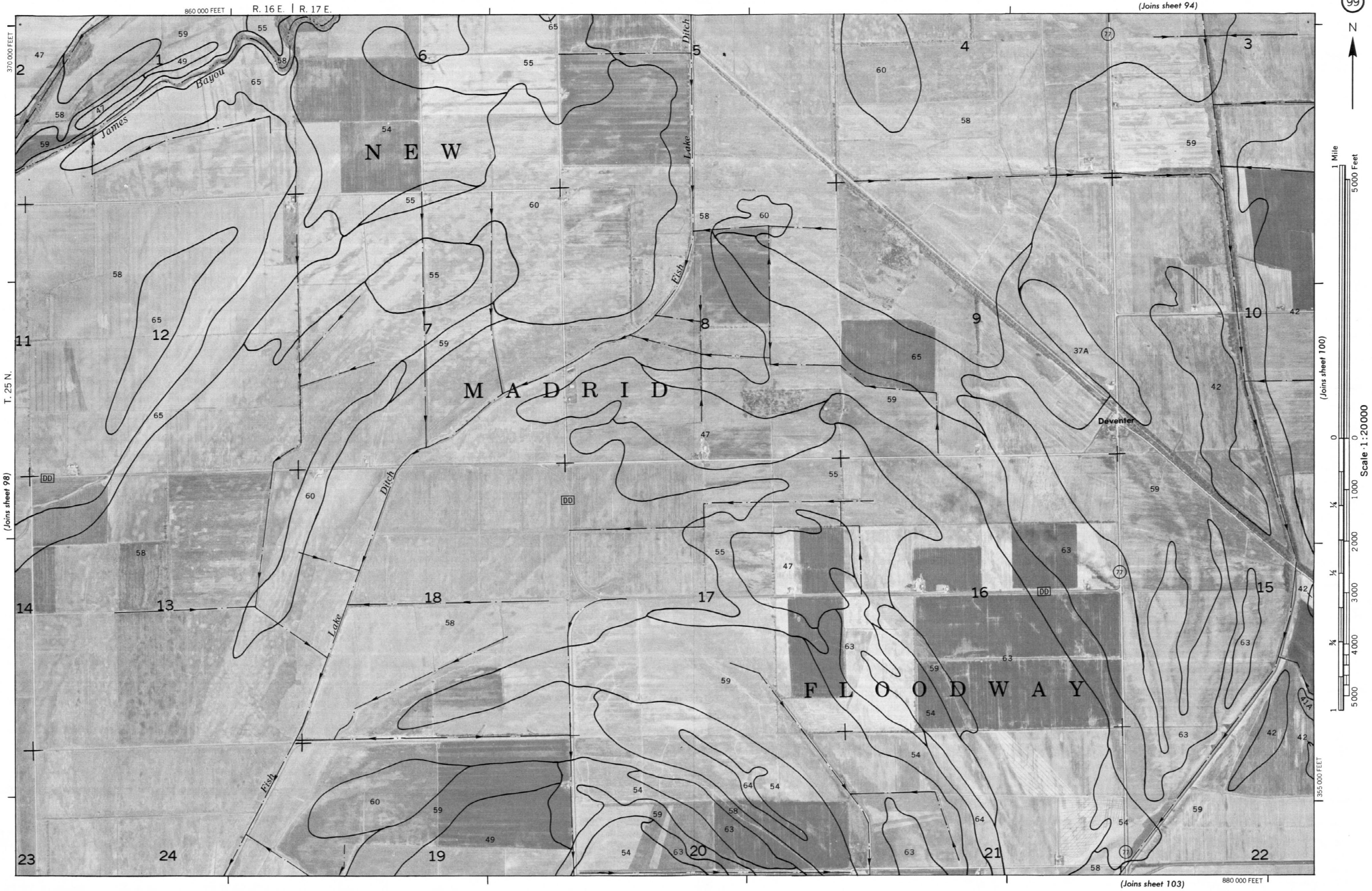

98
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
(Joins sheet 93)
R. 16 E.
855 000 FEET
370 000 FEET
(Joins sheet 97)
(Joins sheet 99)
T. 25 N.
355 000 FEET
(Joins sheet 102)
835 000 FEET
St. James Ditch
Lateral
Hole
Wolf
RAILROAD
Anniston
Airline Acres
Spillway
Ditch
NEW MADRID LEVEE
BIRDS POINT NEW MADRID
James Bayou
NEW MADRID FLOODWAY
105
75
102
DD
2
3
4
5
6
7
8
9
10
11
14
15
16
17
18
19
20
21
22
23
35
36
40
47
49
50
58
59
61
65
67

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

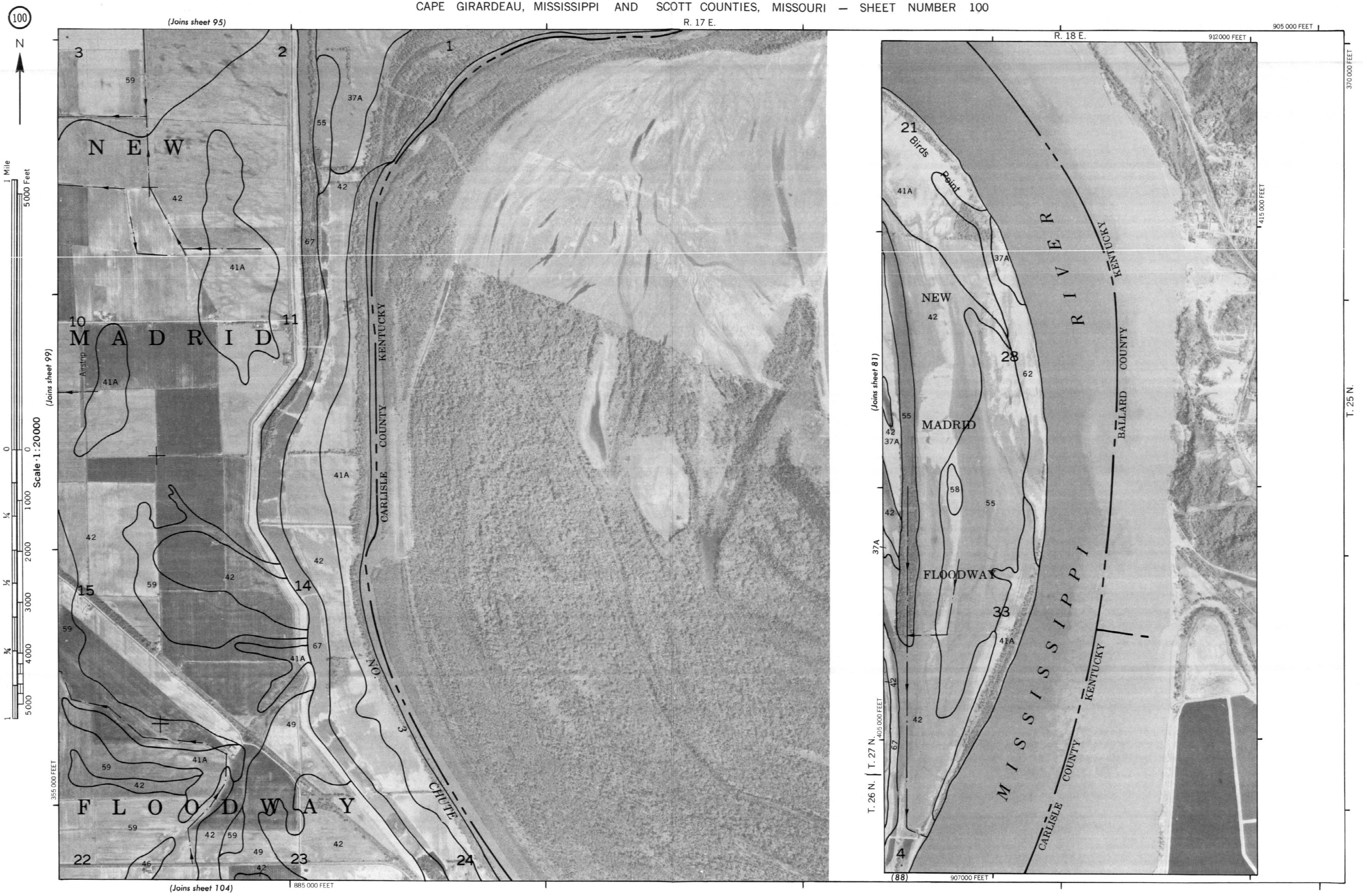
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 98

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 99

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.


99
N
860 000 FEET
R. 16 E.
R. 17 E.
(Joins sheet 94)
370 000 FEET
T. 25 N.
(Joins sheet 98)
(Joins sheet 100)
(Joins sheet 103)
880 000 FEET
355 000 FEET
NEW MADRID FLOODWAY
James Bayou
Fish Lake Ditch
Deventer
77
DD
1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
¼
½
¾
1
Scale - 1:20000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
37A
41A
42
47
49
54
55
58
59
60
63
64
65

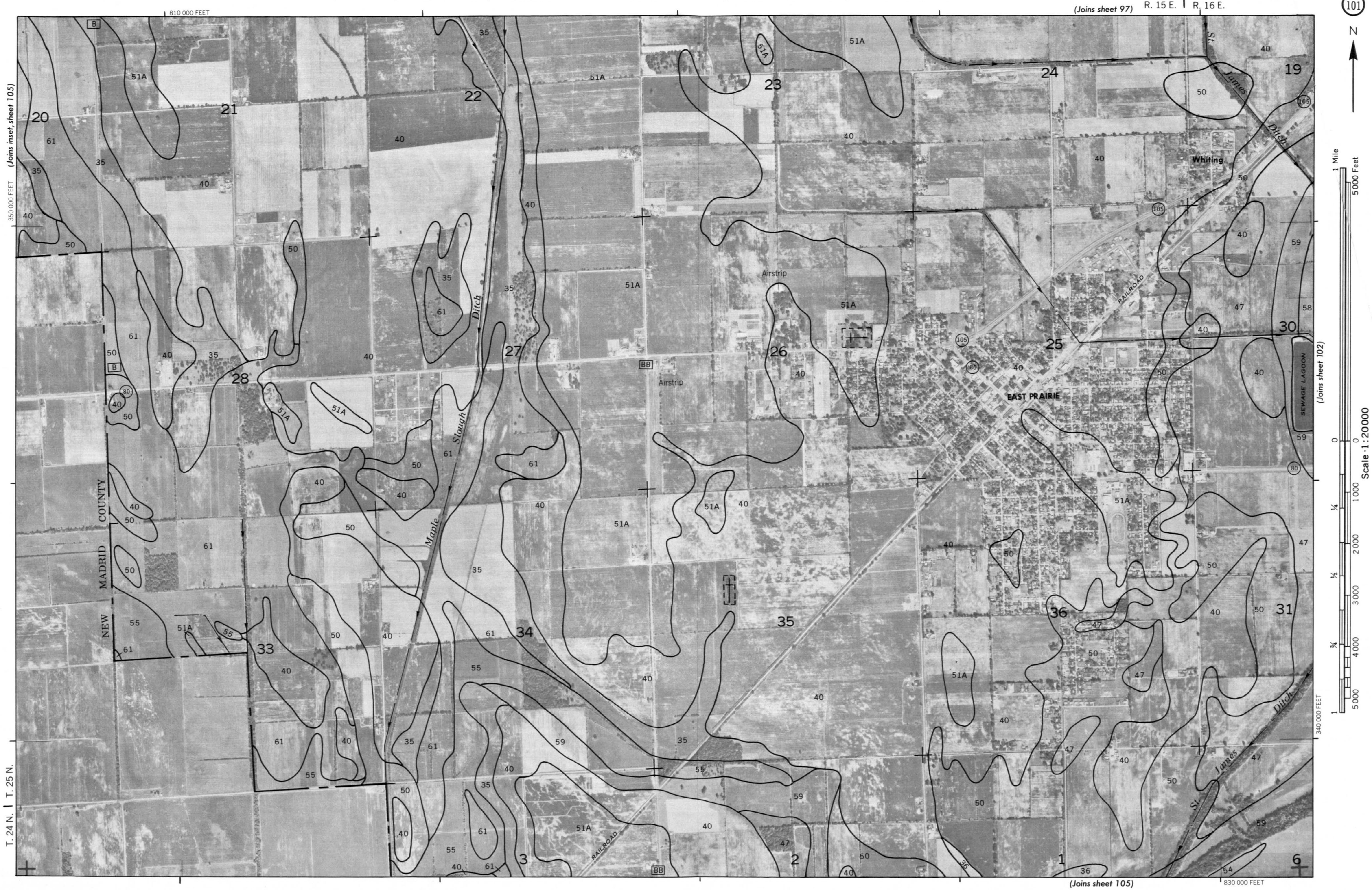
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 100


100
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
(Joins sheet 95)
(Joins sheet 99)
(Joins sheet 104)
(Joins sheet 81)
R. 17 E.
R. 18 E.
T. 25 N.
T. 26 N.
T. 27 N.
905 000 FEET
912000 FEET
370 000 FEET
415 000 FEET
405 000 FEET
355 000 FEET
885 000 FEET
907000 FEET
(88)
NEW MADRID FLOODWAY
Airstrip
CARLISLE COUNTY KENTUCKY
NO. 3 CHUTE
Birds Point
MISSISSIPPI RIVER
BALLARD COUNTY KENTUCKY
1
2
3
4
10
11
14
15
21
22
23
24
28
33
37A
41A
42
46
49
55
58
59
62
67

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 100

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 101

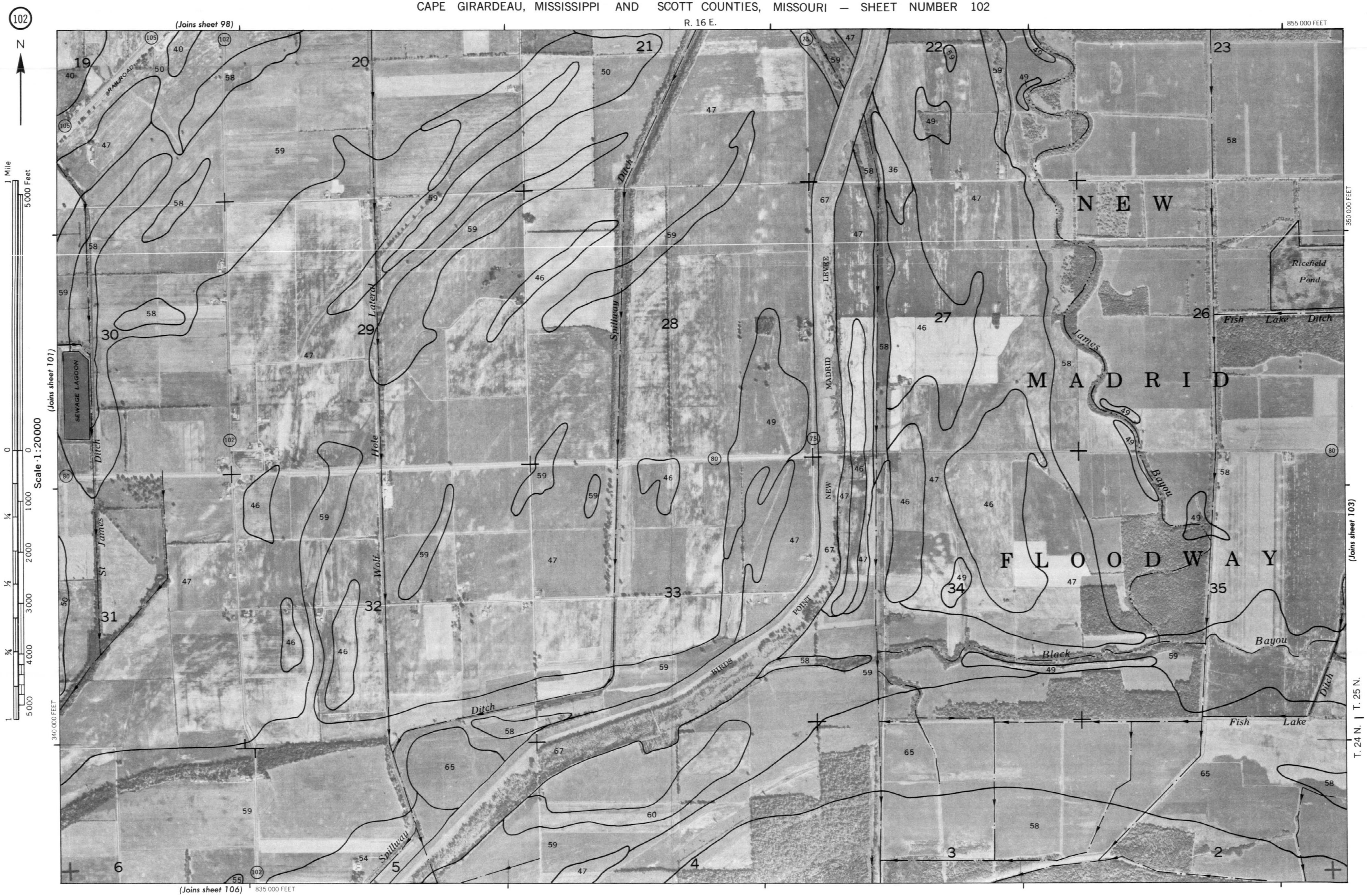


810 000 FEET
(Joins sheet 97)
R. 15 E. | R. 16 E.
101
N
(Joins inset, sheet 105)
350 000 FEET
(Joins sheet 102)
340 000 FEET
(Joins sheet 105)
830 000 FEET
T. 25 N. | T. 24 N.
NEW MADRID COUNTY
Maple Slough Ditch
St. James Ditch
Whiting
EAST PRAIRIE
Airstrip
RAILROAD
SEWAGE LAGOON
B
BB
80
105
20
21
22
23
24
19
25
26
27
28
30
31
33
34
35
36
1
2
3
6
35
40
47
50
51A
54
55
58
59
61
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 101

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 102

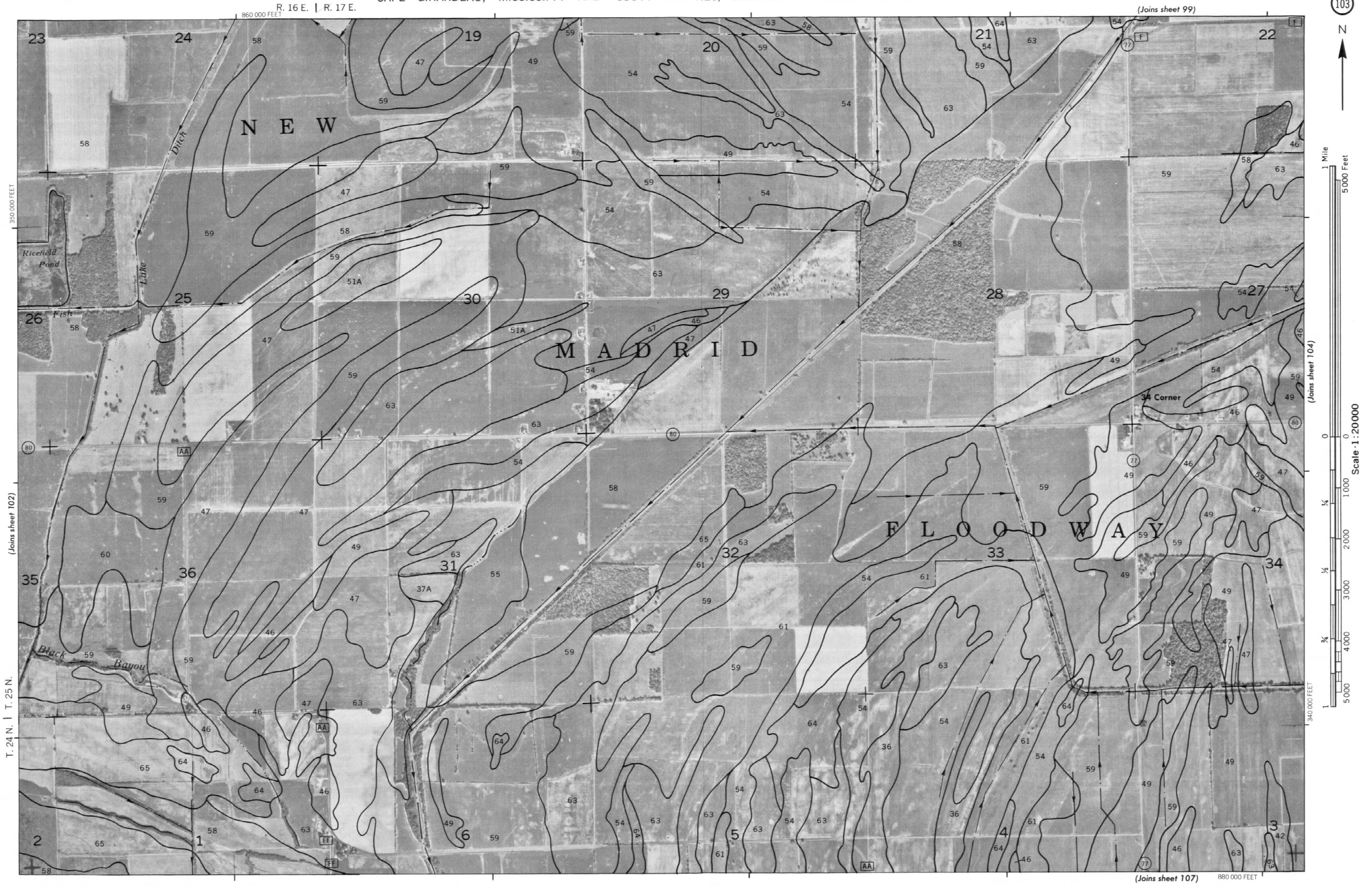


(102)
N
1 Mile
5000 Feet
0
0
1000
¼
2000
½
3000
¾
4000
5000
1
5000
Scale 1:20000
(Joins sheet 98)
R. 16 E.
855 000 FEET
350 000 FEET
(Joins sheet 101)
(Joins sheet 103)
T. 25 N.
T. 24 N.
340 000 FEET
(Joins sheet 106)
835 000 FEET
19
20
21
22
23
26
27
28
29
30
31
32
33
34
35
2
3
4
5
6
RAILROAD
SEWAGE LAGOON
Ditch
St. James Ditch
Wolf Hole Lateral
Spillway Ditch
Spillway
NEW MADRID LEVEE
BIRDS POINT
NEW MADRID FLOODWAY
James Bayou
Ricefield Pond
Fish Lake Ditch
Black Bayou
Fish Lake
Ditch
102
105
75
80
40
50
58
47
59
46
49
36
67
65
60
54
55

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 102

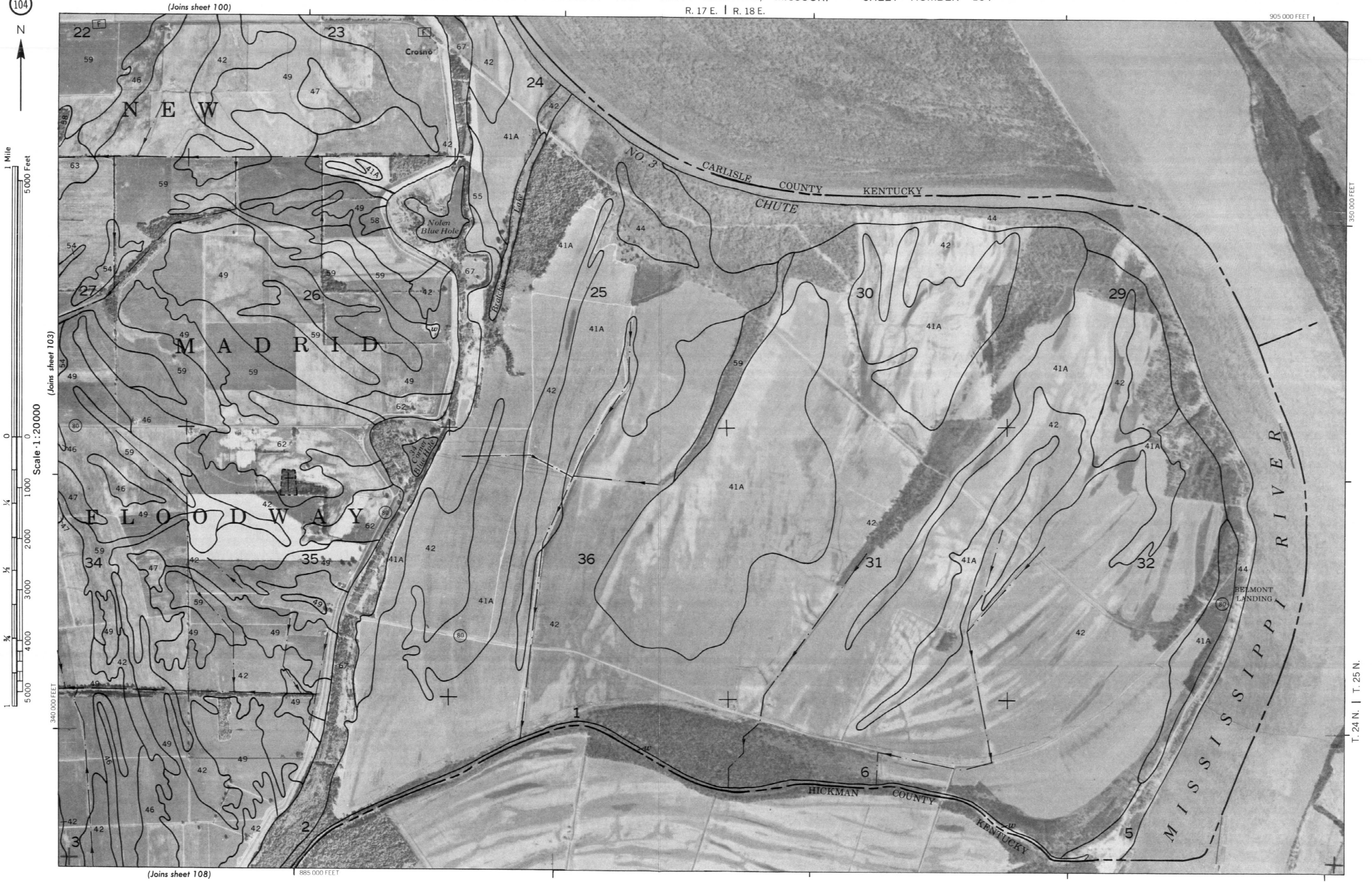
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 103


103
N
R. 16 E. | R. 17 E.
860 000 FEET
(Joins sheet 99)
(Joins sheet 102)
(Joins sheet 104)
(Joins sheet 107)
350 000 FEET
340 000 FEET
880 000 FEET
T. 25 N.
T. 24 N.
NEW MADRID FLOODWAY
Ricefield Pond
Fish Lake Ditch
Black Bayou
34 Corner
1 Mile
5 000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
1
2
3
4
5
6
36
37A
42
46
47
49
51A
54
55
58
59
60
61
63
64
65
80
77
AA
F
FF

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 103

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

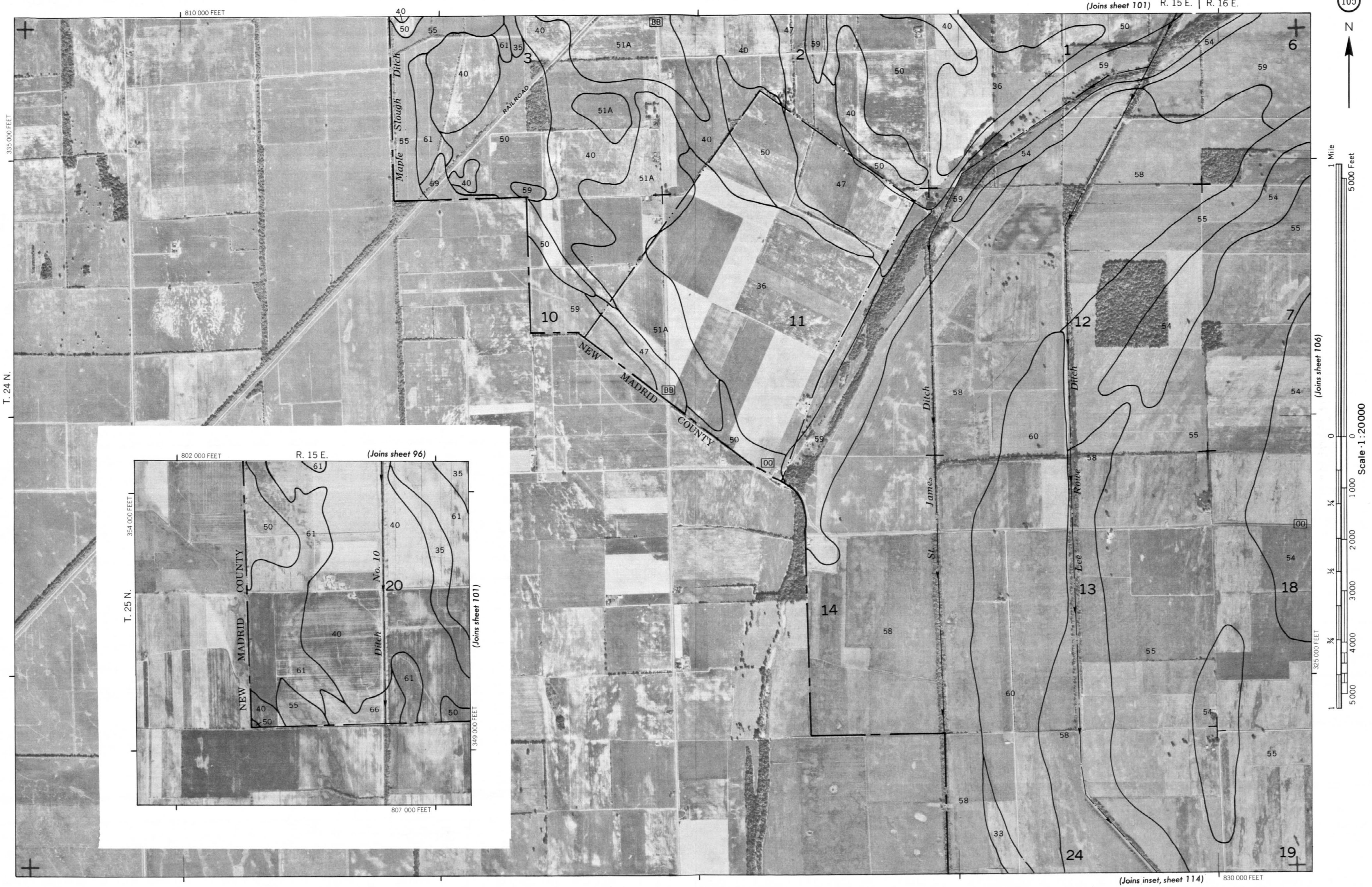
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 104


104
N
(Joins sheet 100)
R. 17 E. | R. 18 E.
905 000 FEET
350 000 FEET
340 000 FEET
885 000 FEET
(Joins sheet 103)
(Joins sheet 108)
T. 24 N. | T. 25 N.
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
1
NEW MADRID FLOODWAY
Crosno
Nolen Blue Hole
Corner Blue Hole
Bratcher Lake
NO. 3 CHUTE
CARLISLE COUNTY KENTUCKY
HICKMAN COUNTY KENTUCKY
MISSISSIPPI RIVER
BELMONT LANDING
22
23
24
25
26
27
29
30
31
32
34
35
36
1
2
3
5
6
41A
42
44
46
47
49
54
55
58
59
62
63
67
80

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 104

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 105

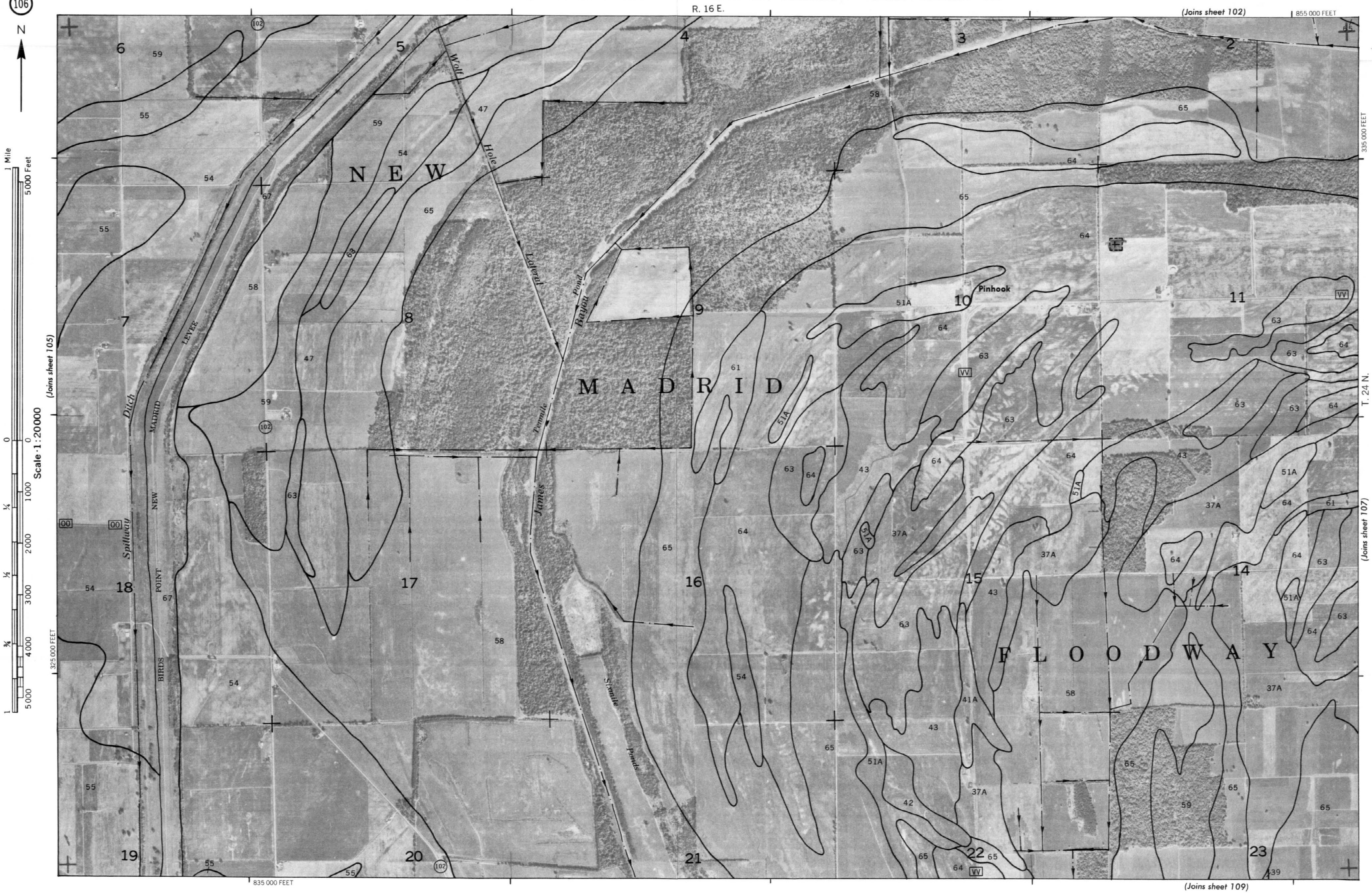

105
N
(Joins sheet 101)
R. 15 E.
R. 16 E.
810 000 FEET
335 000 FEET
T. 24 N.
325 000 FEET
830 000 FEET
(Joins sheet 106)
(Joins inset, sheet 114)
Scale 1:20000
1 Mile
0
¼
½
¾
1
5 000 Feet
0
1000
2000
3000
4000
5000
Maple Slough Ditch
RAILROAD
NEW MADRID COUNTY
St. James Ditch
Lee Rowe Ditch
BB
OO
1
2
3
6
7
10
11
12
13
14
18
19
24
33
35
36
40
47
50
51A
54
55
58
59
60
61
802 000 FEET
R. 15 E.
(Joins sheet 96)
354 000 FEET
T. 25 N.
NEW MADRID COUNTY
No. 10 Ditch
20
(Joins sheet 101)
349 000 FEET
807 000 FEET
35
40
50
55
61
66

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 105

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

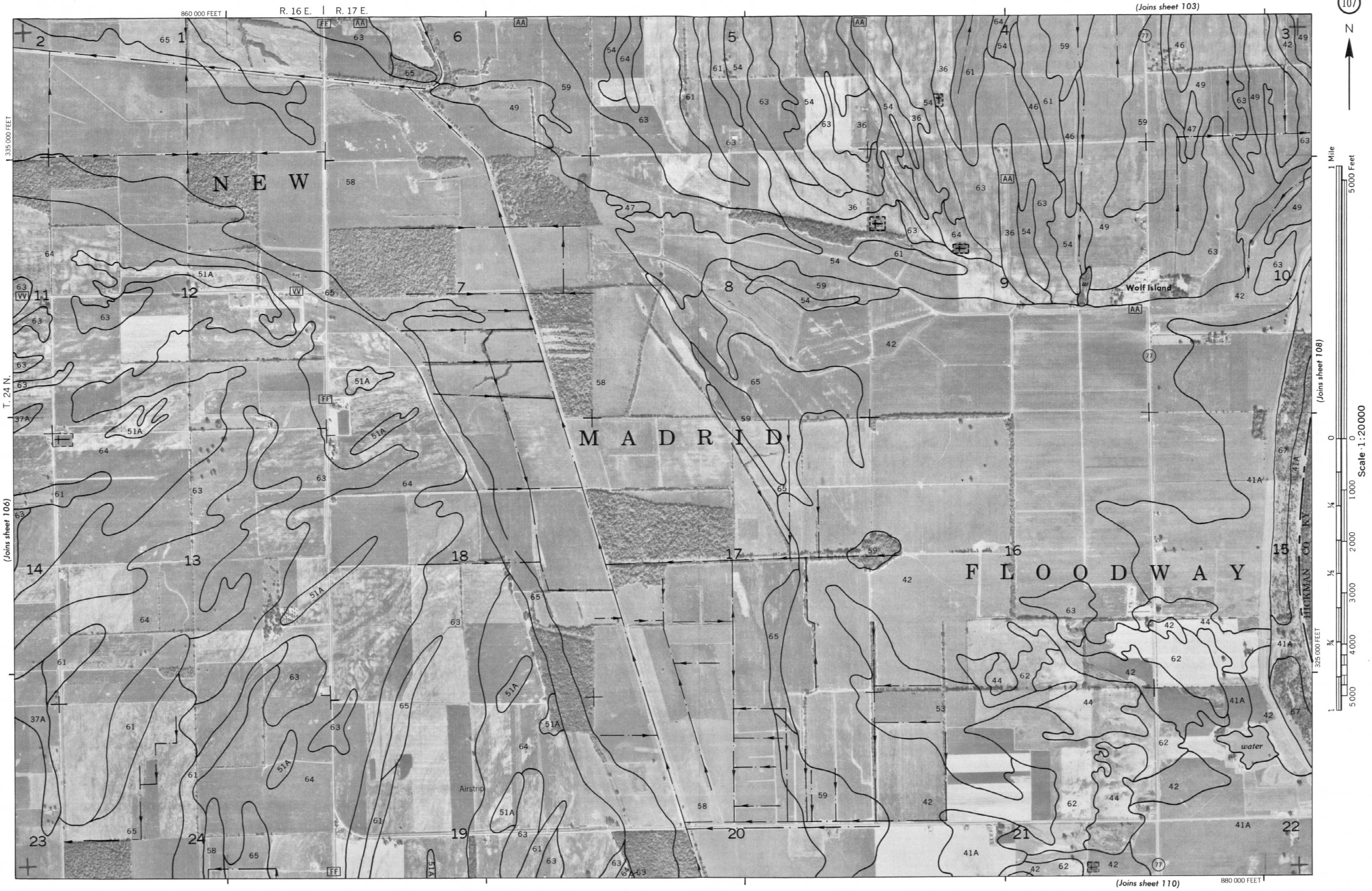
(106)

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 106


N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
R. 16 E.
(Joins sheet 102)
855 000 FEET
335 000 FEET
(Joins sheet 105)
T. 24 N.
(Joins sheet 107)
325 000 FEET
835 000 FEET
(Joins sheet 109)
102
00
VV
NEW MADRID
NEW MADRID FLOODWAY
LEVEE
MADRID
NEW
POINT
BIRDS
Spillway
Ditch
Wolf Hole Lateral
Pond Bayou
Tenmile
James
Simpson Ponds
Pinhook
1
2
3
4
5
6
7
8
9
10
11
14
15
16
17
18
19
20
21
22
23
37A
39
41A
42
43
47
51A
54
55
58
59
61
63
64
65
67

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

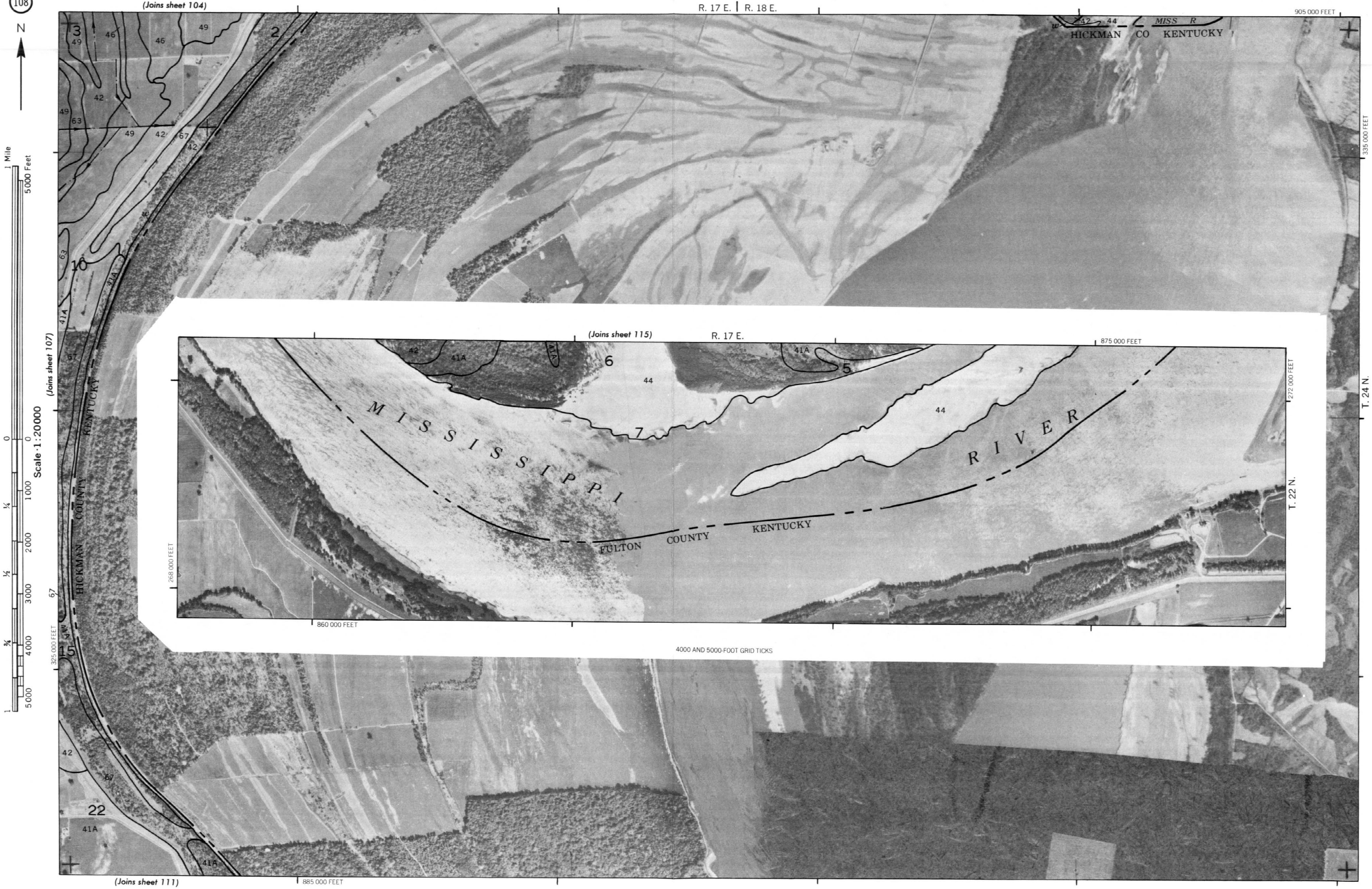
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 106


(107)
N
(Joins sheet 103)
(Joins sheet 106)
(Joins sheet 108)
(Joins sheet 110)
860 000 FEET
880 000 FEET
335 000 FEET
325 000 FEET
R. 16 E.
R. 17 E.
T. 24 N.
NEW MADRID FLOODWAY
Wolf Island
HICKMAN CO KY
Airstrip
water
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
0
¼
½
¾
1

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

108

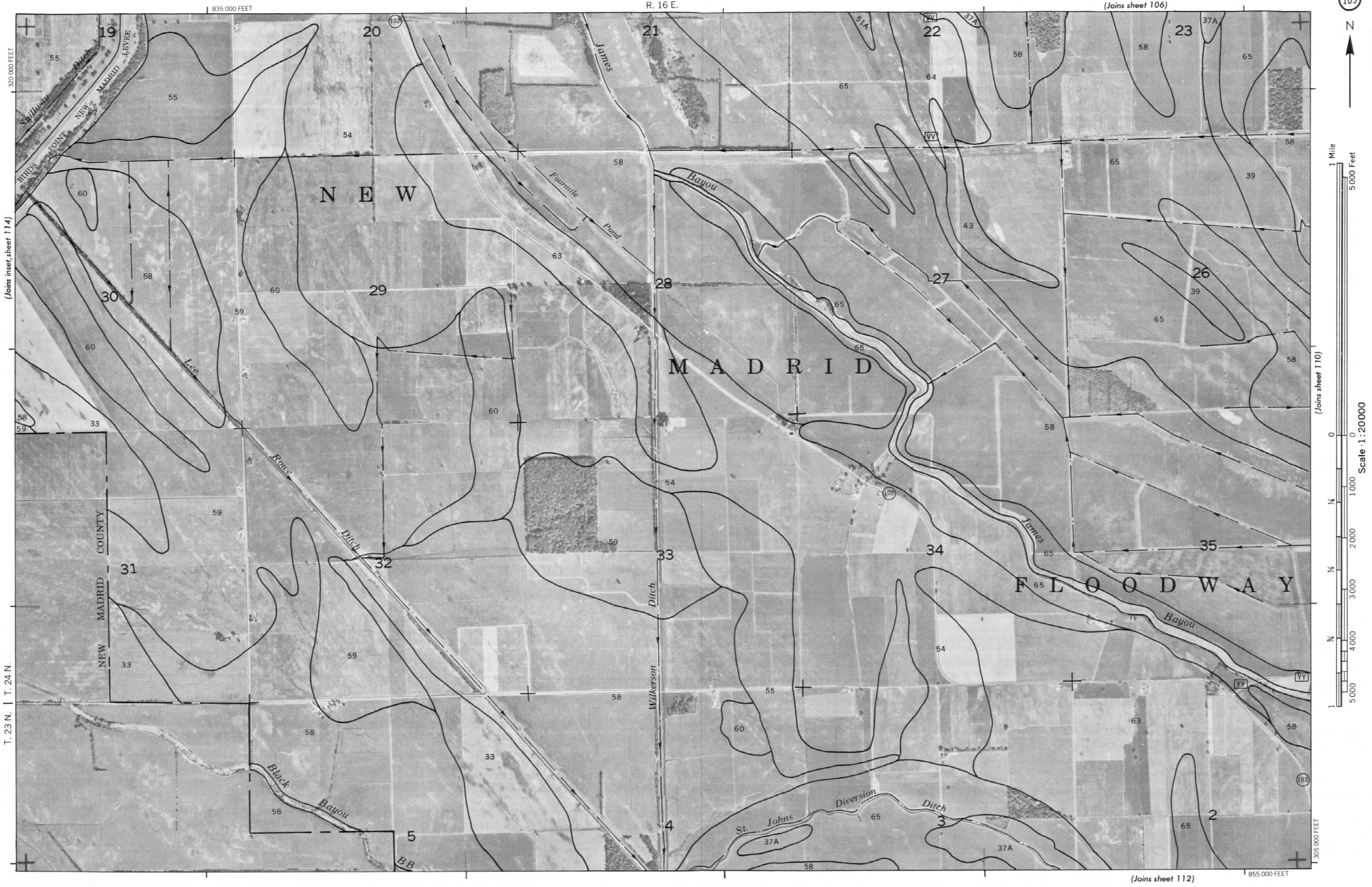
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 108


N
1 Mile
5000 Feet
0
0
1000
¼
2000
½
3000
¾
4000
5000
1
Scale 1:20000
(Joins sheet 104)
R. 17 E.
R. 18 E.
905 000 FEET
335 000 FEET
T. 24 N.
(Joins sheet 107)
325 000 FEET
885 000 FEET
(Joins sheet 111)
HICKMAN CO KENTUCKY
MISS R
HICKMAN COUNTY KENTUCKY
3
2
10
15
22
42
44
46
49
63
67
41A
(Joins sheet 115)
R. 17 E.
875 000 FEET
272 000 FEET
T. 22 N.
268 000 FEET
860 000 FEET
MISSISSIPPI RIVER
FULTON COUNTY KENTUCKY
5
6
7
4000 AND 5000-FOOT GRID TICKS

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 108

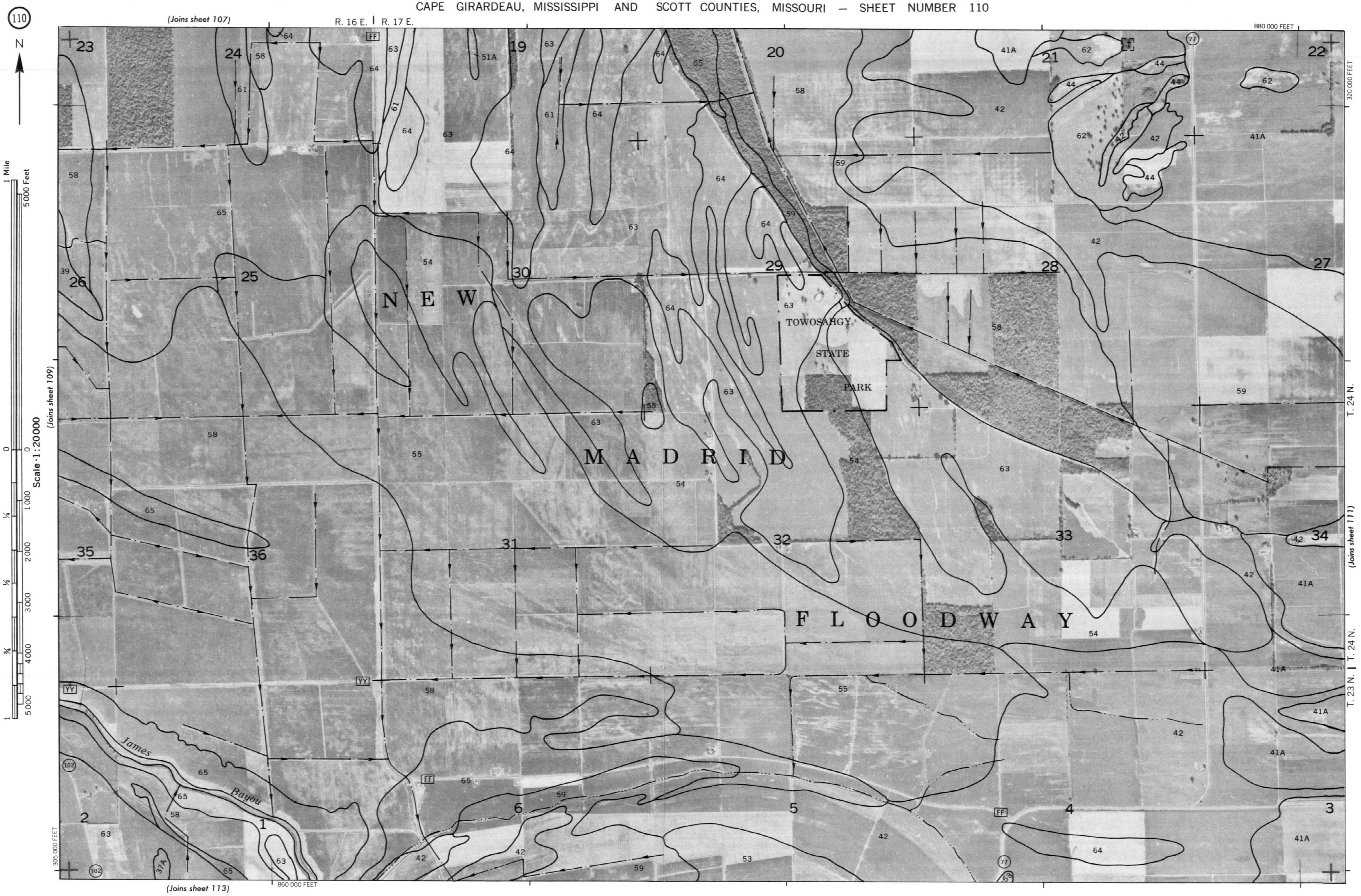
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 109


835 000 FEET
R. 16 E.
(Joins sheet 106)
N
320 000 FEET
(Joins inset, sheet 114)
(Joins sheet 110)
(Joins sheet 112)
305 000 FEET
855 000 FEET
T. 24 N.
T. 23 N.
1 Mile
5000 Feet
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
Scale 1:20000
19
20
21
22
23
102
VV
YY
37A
51A
55
55
54
58
64
65
58
65
Spillway
Ditch
BIRDS POINT NEW MADRID LEVEE
67
James
Fourmile
Pond
Bayou
58
60
58
65
39
43
NEW
MADRID
FLOODWAY
30
29
28
27
26
63
60
59
39
65
65
65
58
Lee
Rowe
Ditch
58
59
33
60
58
54
102
59
59
33
James
32
31
33
34
35
65
65
Bayou
NEW MADRID COUNTY
33
59
54
58
Wilkerson
Ditch
55
60
63
58
58
33
Black
Bayou
58
5
BB
4
St. Johns Diversion Ditch
37A
65
3
37A
65
2
102
58

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 109

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 110


110
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
(Joins sheet 107)
(Joins sheet 109)
(Joins sheet 111)
(Joins sheet 113)
R. 16 E. | R. 17 E.
T. 24 N.
T. 24 N. | T. 23 N.
880 000 FEET
320 000 FEET
860 000 FEET
305 000 FEET
NEW MADRID FLOODWAY
TOWOSAHGY STATE PARK
James Bayou
FF
YY
77
102
23
24
19
20
21
22
26
25
30
29
28
27
35
36
31
32
33
34
2
1
6
5
4
3
37A
39
41A
42
44
51A
53
54
55
58
59
61
62
63
64
65

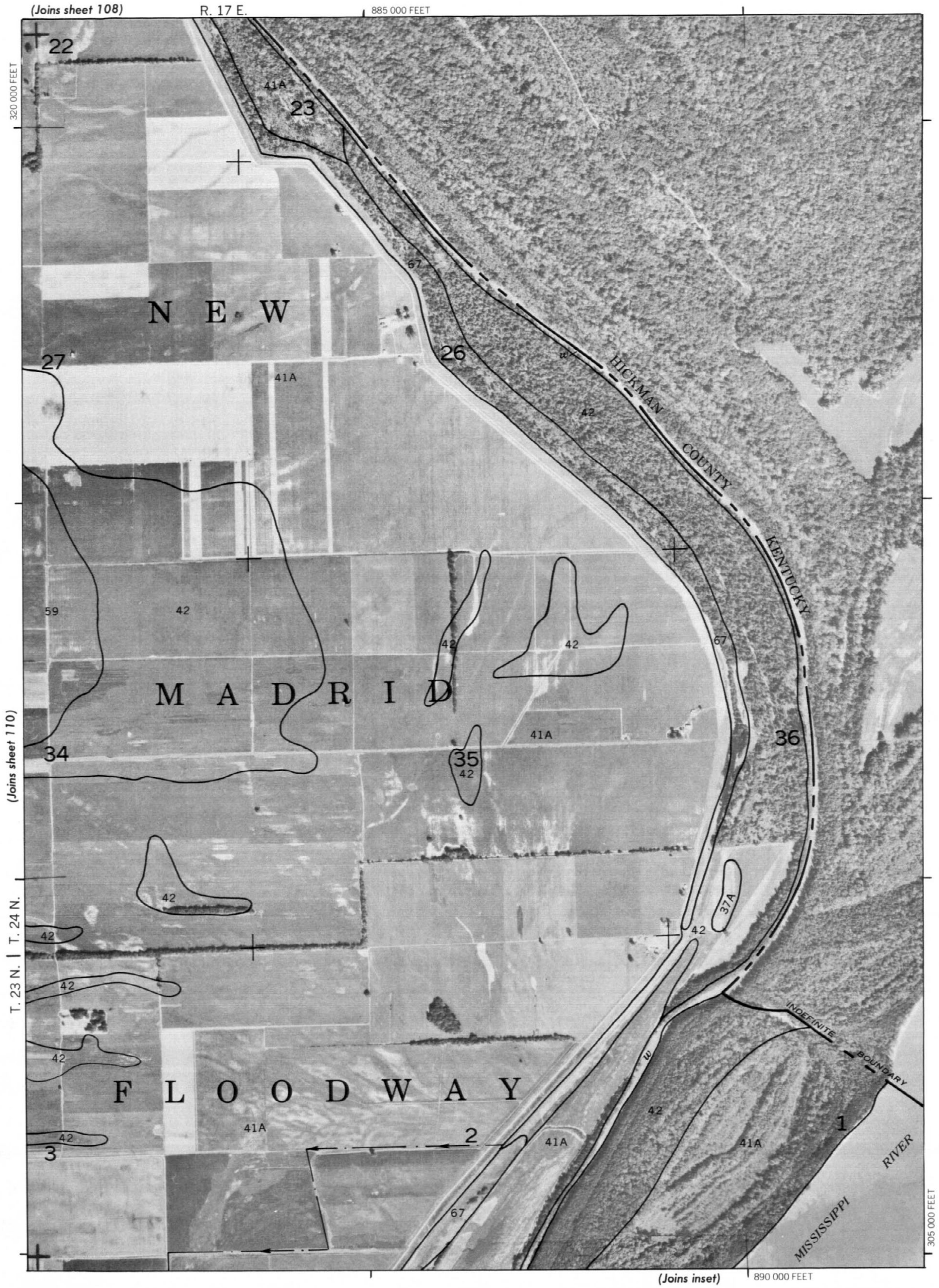
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

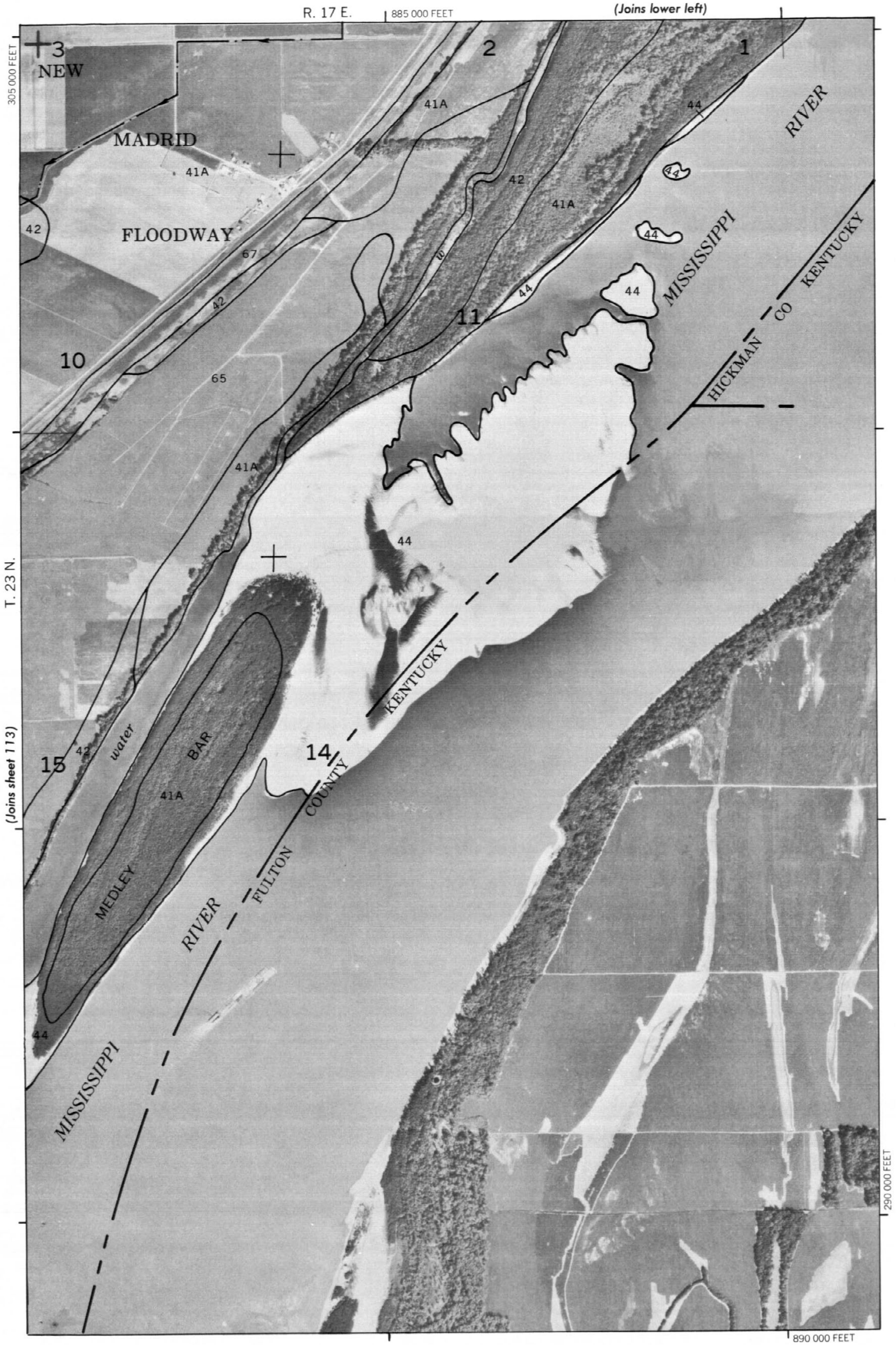
CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 110

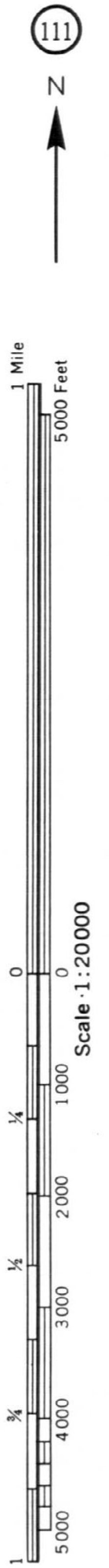
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 111

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 111

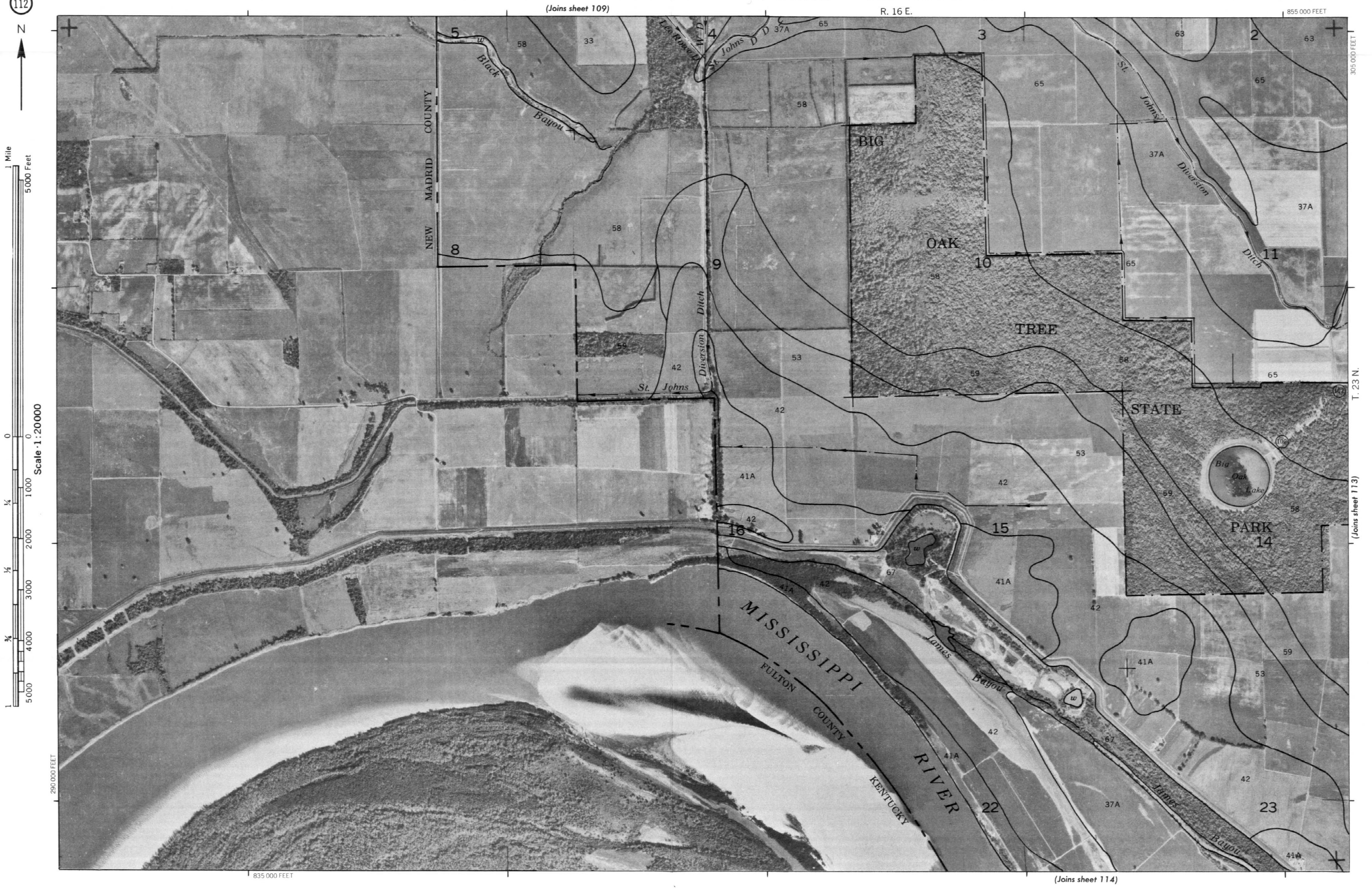
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.


(Joins sheet 108)
R. 17 E.
885 000 FEET
320 000 FEET
22
41A
23
67
NEW
26
27
41A
42
HICKMAN
COUNTY
KENTUCKY
59
42
42
42
MADRID
67
41A
35
42
36
34
(Joins sheet 110)
42
37A
T. 24 N.
T. 23 N.
42
42
42
42
INDEFINITE BOUNDARY
FLOODWAY
1
41A
2
41A
42
41A
RIVER
3
67
MISSISSIPPI
305 000 FEET
(Joins inset)
890 000 FEET


R. 17 E.
885 000 FEET
(Joins lower left)
305 000 FEET
3
NEW
MADRID
41A
2
1
41A
44
RIVER
42
44
42
FLOODWAY
41A
44
67
MISSISSIPPI
42
KENTUCKY
44
44
11
10
65
CO
HICKMAN
41A
44
T. 23 N.
KENTUCKY
15
42
water
BAR
14
(Joins sheet 113)
41A
COUNTY
FULTON
MEDLEY
RIVER
44
MISSISSIPPI
290 000 FEET
890 000 FEET


N
1 Mile
5000 Feet
0
0
Scale 1:20000
1000
¼
2000
½
3000
4000
¾
5000
1

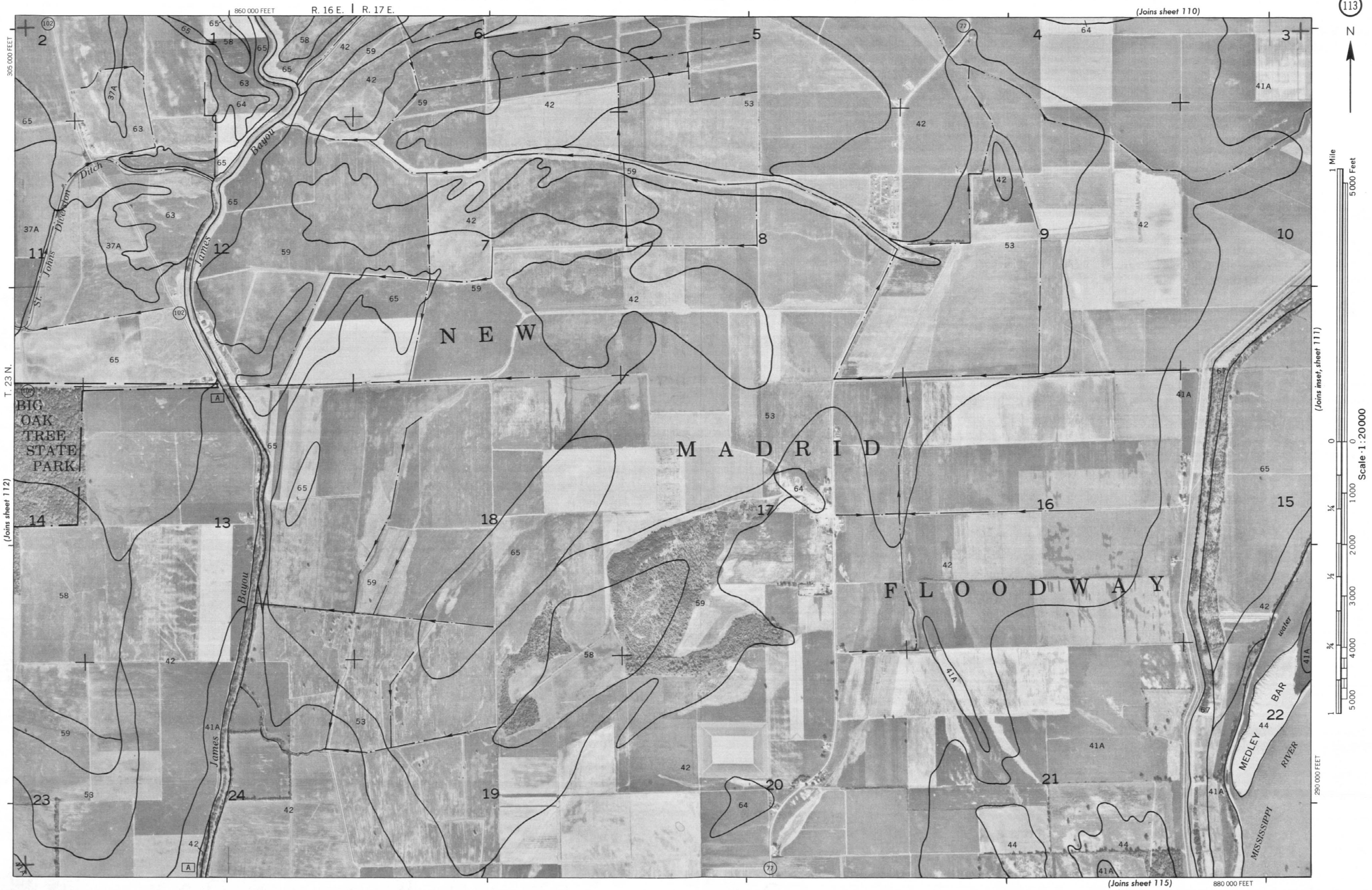
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 112


(112)
N
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000
¼
½
¾
(Joins sheet 109)
R. 16 E.
855 000 FEET
305 000 FEET
T. 23 N.
(Joins sheet 113)
290 000 FEET
835 000 FEET
(Joins sheet 114)
NEW MADRID COUNTY
Black Bayou
Le Roux D.
W. D.
St. Johns D. D.
St. Johns Diversion Ditch
Diversion Ditch
St. Johns
BIG OAK TREE STATE PARK
Big Oak Lake
MISSISSIPPI RIVER
FULTON COUNTY KENTUCKY
James Bayou
2
3
4
5
8
9
10
11
14
15
16
22
23
33
37A
41A
42
53
58
59
63
65
67
w
102

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 112

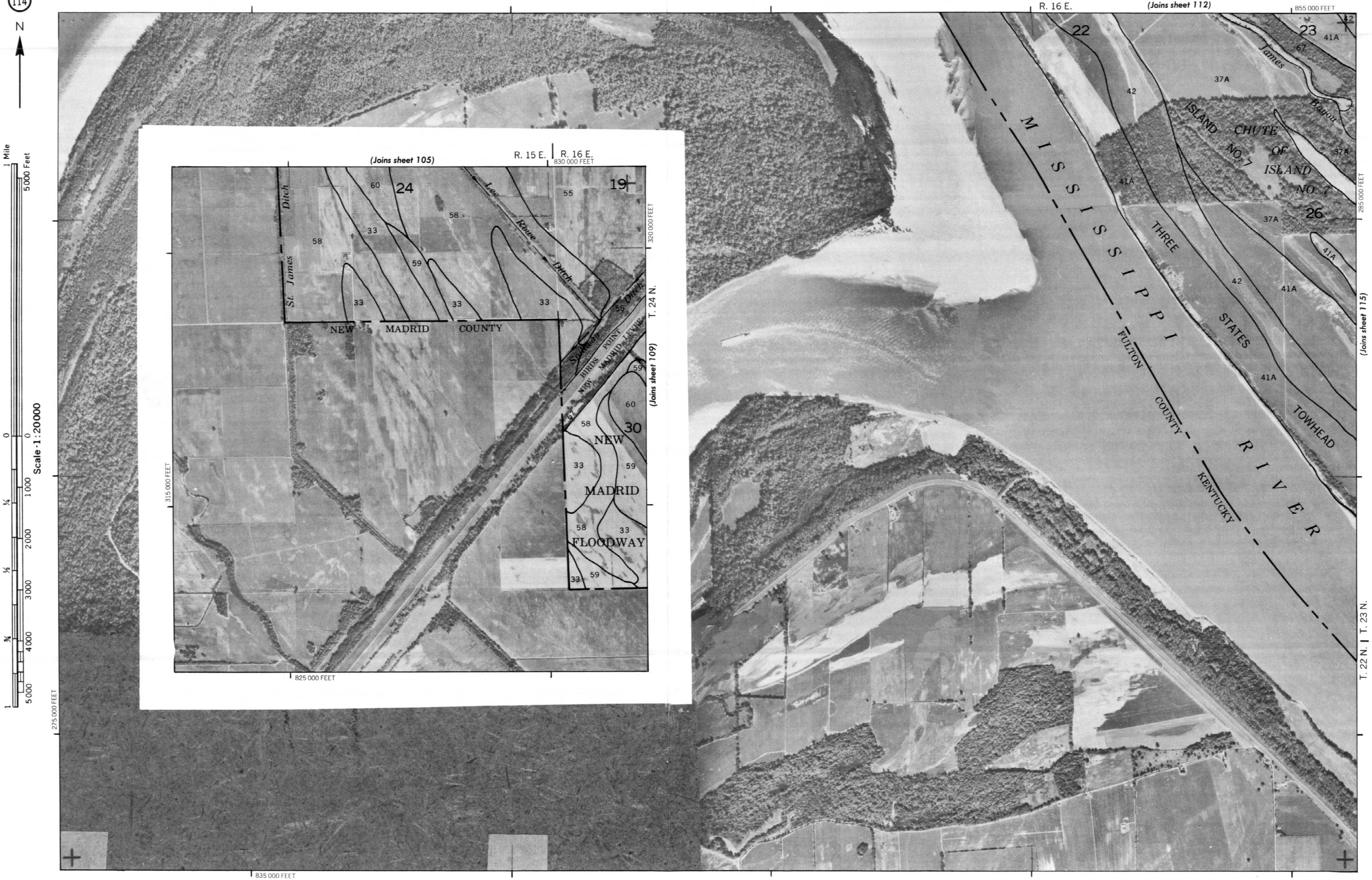
CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 113


113
860 000 FEET
R. 16 E.
R. 17 E.
(Joins sheet 110)
305 000 FEET
T. 23 N.
(Joins sheet 112)
(Joins inset, sheet 111)
290 000 FEET
(Joins sheet 115)
880 000 FEET
N
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
1000
2000
3000
4000
5000
NEW MADRID FLOODWAY
BIG OAK TREE STATE PARK
St. Johns Diversion Ditch
James Bayou
MEDLEY BAR
MISSISSIPPI RIVER
water
102
77
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
37A
41A
42
44
53
58
59
63
64
65
67

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 113

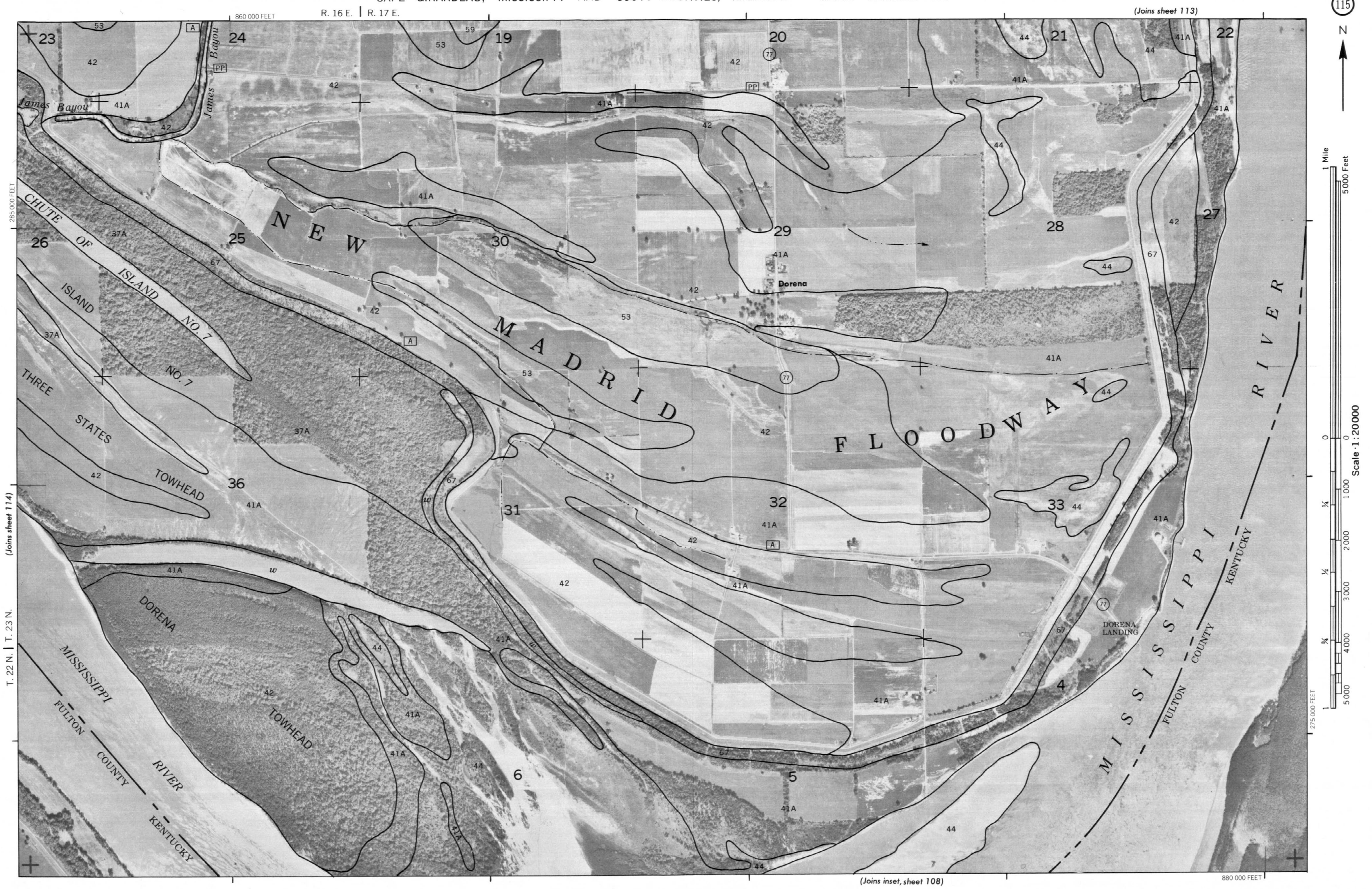
This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 114


N
1 Mile
5000 Feet
0
0
1000
¼
2000
½
3000
¾
4000
5000
5000
Scale 1:20000
R. 16 E.
(Joins sheet 112)
855 000 FEET
22
23
41A
67
42
James
Bayou
37A
ISLAND CHUTE OF ISLAND NO. 7
ISLAND NO 7
26
MISSISSIPPI RIVER
THREE STATES TOWHEAD
FULTON COUNTY KENTUCKY
(Joins sheet 115)
285 000 FEET
T. 23 N.
T. 22 N.
275 000 FEET
835 000 FEET
R. 15 E.
R. 16 E.
(Joins sheet 105)
830 000 FEET
24
19
60
55
58
33
59
Lee Rowe Ditch
St. James Ditch
320 000 FEET
T. 24 N.
NEW MADRID COUNTY
Spillway Ditch
BIRDS POINT NEW MADRID LEVEE
(Joins sheet 109)
30
57
NEW MADRID FLOODWAY
315 000 FEET
825 000 FEET

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

CAPE GIRARDEAU, MISSISSIPPI AND SCOTT COUNTIES, MISSOURI — SHEET NUMBER 115


115
N
860 000 FEET
R. 16 E. | R. 17 E.
(Joins sheet 113)
285 000 FEET
(Joins sheet 114)
T. 22 N. | T. 23 N.
(Joins inset, sheet 108)
880 000 FEET
275 000 FEET
1 Mile
5000 Feet
Scale 1:20000
0
¼
½
¾
1
0
1000
2000
3000
4000
5000
James Bayou
NEW MADRID FLOODWAY
CHUTE OF ISLAND NO. 7
ISLAND NO. 7
THREE STATES TOWHEAD
DORENA TOWHEAD
MISSISSIPPI RIVER
FULTON COUNTY
KENTUCKY
Dorena
DORENA LANDING
77
A
PP
w
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
36
4
5
6
37A
41A
42
44
53
59
67

CAPE GIRARDEAU, MISSISSIPPI & SCOTT COUNTIES, MISSOURI NO. 115

This map is compiled on 1974 and 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.